

MUSEUM OF COMPARATIVE ZOOLOGY  
LIBRARY  
OCT 2 1982  
HARVARD UNIVERSITY

# The Great Basin Naturalist

PUBLISHED AT PROVO, UTAH, BY  
BRIGHAM YOUNG UNIVERSITY

ISSN 0017-3614

VOLUME 42

June 30, 1982

No. 2

## UTAH PLANT TYPES—HISTORICAL PERSPECTIVE 1840 TO 1981— ANNOTATED LIST, AND BIBLIOGRAPHY

Stanley L. Welsh<sup>1</sup>

**ABSTRACT.**—Reviewed are the 144 collectors and 167 authors of 1073 Utah vascular plant types for the period from 1840 to 1981. Historical perspective yields evidence of geography of collection activities by botanists who penetrated the boundaries of the state, and of shifting centers of emphasis in the study of Utah plants from a classical taxonomic standpoint. Philosophy and influence of contemporary authors and collectors is discussed as they affect taxonomy of Utah plants in our first 142 years. A short biographical account of Marcus Eugene Jones and his interaction with other American botanists is included. The annotated checklist includes bibliographical citations, type locality data, collector, and place of deposition.

### ACKNOWLEDGMENTS

It is impossible to complete a work as complex and tedious as this without the help of others. I thank the curators of the herbaria visited by me for their hospitality and willingness to help in this work. They are as follows: Elizabeth McClintock and John Thomas Howell (CAS); Robert Thorne (RSA); Ronald Hartman (RM); Patricia K. Holmgren and Rupert C. Barneby (NY); George Russell (US); Lois Arnow and Beverly Albee (UT); Mary Barkworth (UTC); Theodore J. Crovello (NDG); and Richard Pohl and Duane Isely (ISC). I am indebted to George Knaphus and Lois Tiffany who made it possible for me to visit the site of Jones Grove, where Marcus E. Jones lived with his family near Grinnell, Iowa. Acknowledged also is the help of Mrs. Ralph Fleener, who resides currently on the former Jones's property, for the checking of records and dates on markers in the cemetery at Grinnell.

Kaye Thorne, my colleague at the herbarium of Brigham Young University, gave encouragement and help at all times. Mark L. Gabel aided me with research on the life of Charles Christopher Parry. To him I am grateful.

To Mr. Charles Walker, archivist for the family of Publius Virgilius and Lavinia (Burton) Jones, I am grateful for the access he provided me to a published family history including accounts of Marcus E. Jones and his wife, Anna Elizabeth Richardson. Also, he provided me original letters written by both of them, and by a nephew of Jones, Arthur J. Jones, who accompanied him on attenuated field trips by wagon. These have given me insight into Jones's family life and have allowed me to present a portion of the life-style of his wife and family during his intensely goal-oriented life. I shall be forever indebted to Mr. Walker and his family for this insight.

<sup>1</sup>Life Science Museum and Department of Botany and Range Science, Brigham Young University, Provo, Utah 84602.

## INTRODUCTION

All taxonomists, and others who work with plant names, have been hampered by lack of a summary treatment of Utah plant types, their collectors, authors, and places of deposition. The specimens serve to typify the names applied to them by the authors who named and described them. The types are the name-bearing specimens and are indispensable in interpretation of taxonomic limits and concepts; they are necessary for nomenclatural considerations.

There are several kinds of types, but only holotypes and their duplicates, the isotypes, have been included uniformly in the following treatment. I have not tried to distinguish holotypes from isotypes in the designations of place of deposition; that is a taxonomic consideration which is left to the monographer. In many instances the name bearing specimens were not designated as types by the authors and I have followed tradition in citing the original materials as types. Many of the older names have been subjected to lectotypification. Where this has been obvious, mainly in taxonomic revisions or as indicated on some herbarium annotations, I have followed that usage. Lectotypification, however, is subject to interpretation, and the specimens cited might ultimately be excluded from consideration as lectotype or isolectotype. Too, some materials have been cited as cotypes or syntypes. When a portion of the original collection cited is from Utah, I have included that material as a type. It might have been designated at a lower level, i.e., as paratype, by some author or authors unknown to me.

Designation of types is a function of rules established mainly in the 20th-century, and early authors were not impressed with the necessity of typification. Mention of specimens to vouch for newly described taxa was often only incidental. Most of the types serving as bases for taxa described in the 19th-century are now interpreted through lectotypification. Purists often are involved in polemical struggles over selection of the correct portion of the specimens cited (or not cited) as the lectotype. I have not searched all the literature in which lectotypes have been designated; that is the role of the monographer.

I have tried to avoid inclusion of obvious paratypes. These are specimens cited with the original description, but they are not duplicates of the holotype. Mostly paratypes do, indeed, represent the same taxon as the holotype or lectotype. They are the next most important elements in typification; but sometimes they represent extraneous materials, and might belong to quite different taxa. The main reason for not citing them here involves the endless listing of specimens. They are very numerous, and will be most important to those undertaking revisions and monographs.

Information has been gathered from examination of type collections at the U.S. National Museum (US, 500+); Rocky Mountain Herbarium (RM, 150+); California Academy of Science (CAS, 120+); New York Botanical Garden (NY, 550+); Rancho Santa Ana (POM, 240+); Iowa State University (ISC, ca 100); University of Utah (UT, 100+); Utah State University (UTC, 150+) and Brigham Young University (BRY, 250+). Only selected material has been examined from Gray Herbarium (GH), Carnegie Museum (CM), University of California, Berkeley (UC), Notre Dame University (NDG), and Missouri Botanical Garden (MO). Information on types at the Greene Herbarium at Notre Dame University was taken from a computer print-out provided through the generosity of Professor Theodore J. Crovello. Literature has been reviewed for most of the citations, but some have been unavailable. Other citations still await procedures entailed through inter-library loans.

Type locality information has been abbreviated in some instances to conform to the computer format. Localities of deposition, or supposed deposition, are indicated by the standard abbreviations. Where I have seen the type, the abbreviation is followed by an exclamation mark (e.g., US!). Where the abbreviation stands alone, the place of deposition is taken from literature, or from inference with other collections or names published by the same author, but the specimen has not been seen by me.

Although portions of more than two decades have passed since this work was begun, the data are still incomplete for many of the plant names. I apologize for that lack of



completeness, and for the many errors that will become apparent as one uses the list. Some of the problems are apparently insoluble. Plant collectors and authors seldom have been instilled with sufficient foresight to supply all the information necessary for adequate interpretation of specimens, localities, dates, and other data. Brevity was considered to be a virtue by the collectors (along with an almost impossible, if unstated, belief that others would know what they knew), even when that brevity left out such information as state, locality within the state (or territory), political subdivision of the state, and any other data. Herbarium labels are the sources of information provided by plant collectors, and they should have contained certain basic data. Some of the deficiency, such as lack of place names and surveys, is not the fault of the early workers. Boundaries of the state or territory of Utah were unknown until long after the final reduction of the original Territory of Deseret to its present size in 1868. When one went south from St. George, he was never quite sure when he had entered into Arizona. There is little excuse, however, for the Palmer and Parry labels with only "Southern Utah, Northern Arizona, &c." or "Southern Utah, &c." as the only locality data. In some instances the localities were known only to the collectors, whose passing has denied us of the possibility of ever knowing.

Even when data were provided on labels, the author who subsequently published the name of the plant often failed to cite it. Many of the early publications, and some of the later ones, convey little in the way of accurate data on collector, number, date, locality, or place of deposition of the specimens. Some specimens were taken by obscure collectors, and the locality of collection, dates, and other information remains in doubt.

Localities and dates for some of the plant names have been interpolated by reference with other collections. This is especially the case with county designations; boundaries have changed and new counties have been created since the earliest collections were made, and early collectors were not sure which county they were working in when some collections were made. Some pioneer towns and villages have passed into history,

and others have undergone name changes. Present knowledge of distribution allows for accurate placement, at least to county level, of some materials which were provided with vague or misleading locality information.

Problems associated with collections of certain individuals will be discussed in the historical review presented below.

It is believed that the shortfalls in data do not obscure the basic picture of plant exploration in Utah or of the story of publication of taxa based on Utah types. This attempt at analysis of type data in no way detracts from the larger scene of plant studies which resulted from the naming of plants based on types from other areas. The flora of Utah is replete with names of plants with circum-boreal and other extra Utah representation dating to 18th- and early 19th-century collectors and authors.

Acknowledged also are the contributions to botany of workers whose main thrust did not include classical taxonomy. Numerous botanists have contributed in ecology, physiology, anatomy, morphology, genetics, and other sophisticated fields of endeavor. Each of those areas has allowed for a greater understanding of the taxonomy of the state. Some investigators contributed to more than one of the major botanical disciplines, or to taxonomy of nonvascular plants, not treated herein. Their exclusion from the lists of collectors and authors, or their low placement in the lists does not imply that the contributions are not great. The measure herein is based on contributions in the strictly classical sense. Neither should naming and description of plants be expected to continue indefinitely. But, the botany of the state is not yet elucidated, and much further work is indicated. This work should not be thought of as representing the final word; certainly many citations of Utah types have been overlooked.

#### COLLECTORS OF UTAH TYPES

The number of vascular plant types reported for Utah between 1840 and 1981 is approximately 1073. Exact numbers are impossible due to such equivocal label data as "Southern Utah, Northern Arizona, &c." for some collections. The total number that might be in error is thought to be small, and

for the purposes of this paper they seem not to affect the overall picture. The types have been taken by 144 collectors acting singly or in combination with one or more collaborators (Table 1). Possibly other collectors are obscured by citations where collection data are lacking. Authors include some 167 individuals acting singly or in combination, and will be discussed later.

A summary of collections of Utah plant types by decade is presented in Table 2.

Earliest types taken from Utah were apparently those by John Charles Fremont in 1843 [*Perchiton occidentale* Torr. & Frem. = *Atriplex canescens* (Pursh) Nutt.] on his first expedition in the American West, wherein he explored the vicinity of the Great Salt Lake. The types of *Gilia stenothyrsa* T. & G. and *Senecio multilobatus* T. & G. were collected by Fremont apparently during 1845 in the Uinta Basin. The 1850s were marked by the efforts of Captain Howard Stansbury, F. Creutzfeldt, Henry Engelmann, and Edward Griffin Beckwith. Stansbury explored the Great Salt Lake in 1850; Creutzfeldt and Beckwith were associated with the ill-fated Gunnison expedition of 1853-54. Creutzfeldt was the botanist for the expedition, whose duty was to survey a route for a railroad to the Pacific (Beckwith 1854), and he was killed along with John Williams Gunnison and most of the others of the party in an ambush by Indians near Delta on 26 October 1853. Beckwith, who was leading another portion of the expedition at the time of the disaster, was named to succeed Gunnison. Creutzfeldt had collected types of two

Table 1 continued.

Collectors	Number of types	Years active
Barneby, R.C. (b.1911)	5	1956-66
Beck, D.E. (1906-1967)	1	1938
Beckwith, E.G. (1818-1881)	4	1854
Benson, L.D. (b.1909)	4	1948-49
Bishop, F.M. (1843-1933)	4	1872-73
Brandegee, T.S. (1843-1925)	2	1873-75
Burke, M. (b.?)	1	1932
Carlton, E.C. (b.?)		
& A.O. Garrett (1870-1948)	3	1905
Carrington, J. (b.?)	2	1857
Carter	1	1938
Clawson	2	1935
Clover, E.U. (b.1897)	1	1940
Clover, E.U. (b.1897)		
& M.L. Jotter (b.1914)	1	1940
Clute, W.N. (b.1869)	1	1919
Cottam, W.P. (b.1894)	8	1929-37
Coville, F.V. (1867-1937)		
& I.T. Tidestrom (1864-1956)	1	1908
Creutzfeldt, F. (d.1853)	2	1853
Cronquist, A.J. (b.1919)	4	1961
Despain, K. (b.1947)	1	1978
Eastwood, A. (1859-1953)	36	1892-1941
Eastwood, A. (1859-1953)		
& J.T. Howell (b.1903)	9	1933-41
Eaton, D.C. (1834-1895)	3	1869
Eggleston, W.W. (1863-1935)	1	1912
Ehrendorfer, F. (b.1927)		
& H.C. Stutz (b.1918)	1	1959
Engelmann, H. (1831-1899)	1	1859
Fallas	1	1928
Ferguson		
& A.M. Ottley (b.1882)	1	?
Flowers, S. (1900-1968)	1	1933
Fremont, J.C. (1813-1890)	4	1843-45
Garrett, A.O. (1870-1948)	25	1894-1940
Gentry, J.L. (b.?)	1	1968
Gilbert, C.K. (1843-1916)	1	1901
Gooding, L.N. (b.1880)	21	1902
Goodman, G.J. (b.1904)		
& C.L. Hitchcock (b.1902)	3	1930
Goodrich, S. (b.1943)	2	1980
Gould, F.W. (b.1913)	1	1941
Graham, E.H. (b.1902)	6	1935-37
Hamilton, J.W. (b.?)		
& O.A. Beath (b.1884)	1	1952
Hanson, C.A. (b.1935)	3	1960-61
Harkness, S.J. (b.?)	1	1902
Harrison, B.F. (b.1908)	2	1939-50
Heil, K.D. (b.1941)	2	?
Hermann, F.J. (b.1906)	3	1933
Hermann, A. (b.?)	1	1953
Higgins, L.C. (b.1936)	3	1968
Hitchcock, C.L. (b.1902)	1	1949
Holmgren, A.H. (b.1912) et al.	4	1947-74
Holmgren, A.H. (b.1912)		
& S.S. Tillet (b.?)	1	1953
Holmgren, N.H. (b.1937) et al.	10	1965-79

TABLE 1. Collectors of Utah plant types.

Collectors	Number of types	Years active
Al-Shehbaz, I.A. (b.?)	1	1969
Atwood, N.D. (b.1938)	3	1970-76
Atwood, N.D. (b.1938)		
& L.C. Higgins (b.1936)	2	1969-73
Atwood, N.D. (b.1938) et al.	1	1971
Bailey, V.O. (1864-1982)	1	1891
Baker, J.G. (1834-1920)	2	1895
Baker, M.S. (1868-1961)	1	1936
Ball, C.R. (1873-1958)	1	1908
Barkley, F.A. (b.?)		
& M.J. Reed (b.?)	1	1939

Table 1 continued.

Collectors	Number of types	Years active
Holmgren, N.H. (b.1937) & P.K. Holmgren (b.1940)	4	1970-78
Holmgren, N.H. (b.1937) & J.L. Reveal (b.1941)	7	1965-69
Huffman	3	1953
Johnson, J.E. (1817-1882)	2	1870
Jones, M.E. (1852-1934)	305	1879-1923
Kearney, T.H. (1874-1956) & H.L. Shantz (1867-1958)	2	1912
Klein, W. (b.?)	1	1959
Kuntze, C.E.O. (1843-1907)	2	1874
Larson	1	1934
Leonard, F.E. (1866-1922)	11	1883-85
Linford, J.H. (b.1863)	9	1897
Maguire, B. (b.1904)	26	1932-47
Maguire, B. (b.1904) & H.L. Blood (b.?)	1	1937
Maguire, B. (b.1904) & A.H. Holmgren (b.1912)	1	1946
Maguire, B. (b.1904) & R. Maguire (b.?)	2	1932
Maguire, B. (b.1904) et al.	4	1936-42
Marsh	3	1945
Mathias, M.E. (b.1906)	2	1929
McKelvey, S.D. (b.1883)	2	1934
Mulford, A.I. (b.?)	3	1898
Neese, E. (b.1934) & S. Peterson (b.?)	1	1978
Neese, E. (b.1934) & S.L. Welsh (b.1928)	1	1979
Neese, E. (b.1934) & S. White (b.1955)	1	1977
Nelson, A. (1859-1952)	4	1922
Newberry, J.S. (1822-1892)	2	1959
Nord & Sargent	1	1927
Osterhout, G.E. (1858-1937)	1	1925
Ostler, W.K. (b.1951) & D.C. Anderson (b.1948)	1	1978
Ownbey, G.B. (b.1916)	1	1954
Palmer, E. (1831-1911)	58	1870-77
Pammel, L.H. (1862-1931) & R.E. Blackwood (b.?)	2	1902
Parry, C.C. (1823-1890)	38	1874
Payson, E.B. (1893-1927)	5	1914-26
Peabody, F.J. (b.1948)	1	1976
Pennell, F.W. (1886-1952)	1	1915
Pilsbry	1	1925
Plummer, P. (b.1911)	1	1939
Porter, C.L. (b.1889)	3	1939-50
Purpus, C.A. (1851-1941)	4	1897-99
Reading	1	?
Reveal, J.L. (b.1941)	3	1964-74
Reveal, J.L. (b.1941) & G. Davidse (b.?)	3	1967
Reveal, J.L. (b.1941) & N.H. Holmgren (b.1937)	1	1964
Reveal, J.L. (b.1941) & C. Reveal (b.?)	3	1967-75

Table 1 continued.

Collectors	Number of types	Years active
Reveal, J.L. (b.1941) & S.L. Welsh (b.1928)	1	1966
Ricker, P.L. (1878-1973)	1	1917
Ripley, H.D.D. (b.?) & R.C. Barneby (b.1911)	11	1942-47
Rollins, R.C. (b.1911)	7	1937-79
Rollins, R.C. (b.1911) & T.S. Chambers (b.?)	1	1938
Rydberg, P.A. (1860-1931)	81	1895-1911
Rydberg, P.A. (1860-1931) & E.C. Carlton (b.?)	22	1905
Rydberg, P.A. (1860-1931) & A.O. Garrett (1870-1948)	24	1911-13
Sampson, A.W. (b.1884)	1	?
Shands, W.A.	1	1931
Shultz, L. (b.1946) & J. Shultz (b.?)	1	1980
Siler, A.L. (1824-1898)	6	1873-75
Smith, C.P. (1877-1955)	6	1909-25
Stansbury, H. (1806-1853)	11	1850
Stanton, W.D. (b.1900)	2	1930-32
Stokes, S.G. (1868-1954)	4	1900-34
Stoutamire, W.P. (b.?)	1	1957
Thompson, E.L.P. (b.?, d.?)	15	1872
Tidestrom, I. (1864-1957)	13	1901-19
Tompkins, P.W. (b.?)	1	1939
Tracy, S.M. (1845-1922)	3	1887-91
Tracy, S.M. (1845-1922) & Evans	1	1887
Trelease, W. (1857-1945)	1	1889
Vicker	1	1901
Walker, E.B. (b.?)	5	1912
Ward, L.F. (1841-1913)	30	1875
Warner, L. (b.?)	1	1957
Watson, S. (1826-1892)	100	1869
Watson, T.J. (b.?)	1	1971
Welsh, S.L. (b.1928)	12	1966-80
Welsh, S.L. (b.1928) & N.D. Atwood (b.1938)	3	1970-72
Welsh, S.L. (b.1928) & G. Moore (b.1917)	2	1963-76
Welsh, S.L. (b.1928) & J.R. Murdock (b.1921)	1	1975
Welsh, S.L. (b.1928) & K.N. Taylor (b.1955)	2	1977
Welsh, S.L. (b.1928) & B.J. Welsh (b.1961)	1	1977
Welsh, S.L. (b.1928) & S.L.T. Welsh (b.1930)	5	1969-75
Welsh, S.L. (b.1928) et al.	5	1969-75
Wetherill, B.A. (1861-1950)	3	1895-97
Wheeler, G.M. (b.1842)	3	1872
Williams, L.O. (b.1908)	1	1932
Winkler	1	?
Woodbury, L.A. (b.?)	1	1977
TOTAL	1073	



*Eriogonum* taxa in the Green River vicinity. Beckwith took the type of a handsome *Astragalus*, which bears his name. Several taxa were later dedicated to the memory of Gunnison, but unfortunately none of our Utah materials bears the name of Creutzfeldt. Engelmänn was meteorologist and botanist with the Simpson expedition (Ewan 1950) and took the type of *Echinocactus whipplei* var. *spinosior* Englemann (named by his brother George Engelmann) somewhere west of Camp Floyd in August 1859.

The first woman collector of Utah types appeared on the scene in the 1850s. Jane Carrington (a Mormon lady) collected some 59 species in the basin of the Great Salt Lake in 1857 (Reveal 1972). She was apparently the first woman to collect plants in the territory since the arrival of the Mormon pioneers, a decade earlier. Two of her collections are the basis of types. They were named by Elias Durand (1860) as *Erysimum asperum* var. *pushtii* and *Acerates decumbens*. Perhaps this person is Jane Maria Carrington (26 February 1840, Wiota, Wisconsin), daughter of Albert Carrington and Rhoda Maria Woods, who married Brigham Young, Jr. in March of 1857. Albert Carrington was prominent in early day affairs of the territory of Deseret, serving as editor of the Deseret News (Coolley 1980). Albert Carrington accompanied Stansbury on his exploration of the Great Salt

Lake in 1849-50, and would have known of the important plant collections taken by that individual. It seems probable that the collections were taken earlier than the 1857 date indicated, when Jane would have been 15 or 16 years of age.

The exploration of the region later to be circumscribed as Utah was slow. The 1860s was a quiescent period until its final year. In 1869 Sereno Watson arrived on the scene, accompanied for at least a part of the period by Daniel Cady Eaton (Ewan 1950). The quiescence of the earlier part of the decade was shattered by the advent of these two, especially by the former. They took some 103 types from the state in that year. Mainly they collected in the Wasatch Mountains of Salt Lake, Summit, and Utah counties. Watson visited the Uinta Mountains and islands of Great Salt Lake in the summer of 1869, and he was in the Raft River Mountains in the northwest during 1868. Eaton evidently accompanied him into Provo Canyon, where they collected the type of the beautiful scarlet penstemon which was to bear Eaton's name. Watson was associated with the King's survey of the 40th parallel, and he was its principal botanist (Watson 1871). Despite the apparent paucity of their assault on the unknown plant taxa of the state, Watson and Eaton yielded a huge assemblage of materials, and averaged some 51.5 Utah plant taxa per collector. That figure stands as the all-time high in the history of plant collection in Utah.

TABLE 2. Decade of collection of Utah types, number of collectors, and average number of types per collector.

Decade	Number of Types	Number of Collectors	T/C
1840-49	4	2	2.0
1850-59	23	5	4.4
1860-69	103	2	51.5
1870-79	184	10	18.4
1880-89	54	5	10.6
1890-99	259	9	28.8
1900-09	105	13	8.0
1910-19	60	13	4.5
1920-29	19	9	2.1
1930-39	85	31	2.7
1940-49	46	11	4.1
1950-59	12	11	1.1
1960-69	47	16	2.9
1970-79	52	24	2.2
1980-81	6	2	3.0
Without date	20	4	—
Total	1073	144	7.4

(Note: Because of overlap of collectors into more than one decade, the collectors column totals to more than 144, the actual count of all collectors known for the period.)

Specimens cited as vouchers for taxa reported by Watson and Eaton are numbered in a sequence that corresponds to the species number in the report of the expedition (Watson 1871). Because of this practice, the same number will often include specimens from widely disparate localities, i.e., "East Humboldt Mts., Nevada and Uinta Mts., Utah." When it has been possible to determine that the Utah portion has been selected as lectotype, I have cited that as the type, but when the lectotype has been selected from Nevada, I have excluded that name from among our Utah types. Some of the names cited in the checklist might be in error. They are included here for the sake of completeness.

This same problem exists with collections by Edward Palmer and Charles Christopher

Parry, whose collections were taken astride the Utah-Arizona border, which was not surveyed until later.

Collectors in the 1870s include Joseph Ellis Johnson, Edward Palmer, Mrs. Ellen Powell Thompson (sister of John Wesley Powell), Lt. George Montague Wheeler, Captain Francis Marion Bishop, Charles Christopher Parry, Lester Frank Ward, and finally, in 1879, Marcus Eugene Jones, whose appearance on the scene presaged a lifetime as resident botanist. Jones was to dominate Utah plant taxonomy until 1923, a total of 44 years. Palmer and Parry concentrated their efforts in southwestern Utah, especially in what is now Washington County. Palmer visited the area twice, in 1870 and 1877, and took a total of 58 specimens later designated as types. He was a collector only, depending on others to name the plants he sampled in Utah. Type collections taken by Parry were mainly from his 1874 trip. Parry was in central Utah in 1875, and again in 1877 (with Palmer) at St. George, but these trips added little to his type list for Utah. The total number of his types is 38, and he was responsible for publishing at least 2 of those. According to Jones (*Contr. W. Bot.* 17: 3. 1930), Parry was in the St. George vicinity for only about a month. His herbarium is at Iowa State University, and contains numerous collections by Palmer along with his own materials (Gabel 1981).

Charles Christopher Parry was born in Admington, Gloucestershire, England, 28 August 1823, and died at Davenport, Iowa, 20 February 1890. He moved with his family to America in 1832, where they settled in Washington County, New York. He received the degree of Doctor of Medicine from Columbia College in 1846, where he was influenced by Dr. John Torrey, professor at that institution (Preston 1897, Gabel 1981). Parry moved to Davenport, Iowa, in 1846. He practiced medicine for a few months only before turning to his greater interest of botany. Following a career exploring the West with various governmental surveys, the pursuit of natural history led Parry to Utah. He came to Utah on a private trip, not associated with any of the surveys.

Contrary to Jones's statement (see above), Parry was in St. George from early April to June of 1874, and then moved north to Cedar

City and Beaver. His host in St. George was Joseph Ellis Johnson (Jones 1930, personal correspondence of Parry ISC), pioneer publisher, herbalist, and horticulturalist (Chamberlain 1950). The following year Parry worked out of Spring Lake (Utah County), where he was the guest of Benjamin Franklin Johnson, brother of Joseph Ellis Johnson. His objective for that year was to obtain a collection of the flora in the vicinity of Mt. Nebo, whose flora he decided was depauperate (Parry 1878, Ewan 1950). Parry was an acquaintance of Asa Gray, John Torrey, and George Engelmann. He corresponded with each of them and sent his specimens to them for determination and naming. His contributions to the understanding of Utah plants are significant.

Edward Palmer was born at Wilton, County Norfolk, England on 12 January 1831 and died on 10 April 1911 in Washington, D.C. (McVaugh 1956). He came to America in 1849 where he settled in Cleveland, Ohio. After attending classes at Homeopathic College in Cleveland for a few months during the winter of 1856-57, Palmer moved to Highland, Kansas—to practice medicine. He assumed the title of doctor, which he was to carry the remainder of his life. Previously he had been on an expedition to South America,



Fig. 1. Marcus Eugene Jones (1897), principal pioneer plant taxonomist in Utah (photo courtesy of the Jones family archivist, Charles Walker).

and was soon involved in other expeditions where he collected plant, animal, and archaeological materials. In 1870 he arrived by rail at Salt Lake City, where he heard a speech by Brigham Young, was introduced to him, and left for southwestern Utah carrying a letter of introduction provided by Brigham Young. He stayed in St. George and vicinity for about 10 days prior to departing with a party delivering a threshing machine to St. Thomas, Nevada. They left St. George on 17 June 1870, and spent at least a day and a half beyond that date still in Utah. He noted the grand sight of the Joshua tree forest on the Beaverdam Slope. His total collections in Utah for that year is thought to be very small, for he took only about 200 plants total for the latter part of 1869 and all of 1870 (McVaugh 1956). Only seven of the 58 Utah types taken by him were collected in 1870.

Palmer was an acquaintance of C. C. Parry, and Parry helped with distribution of the Palmer material. In 1876 Palmer was employed by the Peabody Museum to do some archeological excavations in southern Utah. He was at St. George from December 1876 to June of 1877. During June he moved his base of operations to Red Creek (Paragonah) where he worked in Bear Valley in early July, then on to Beaver, and finally to Spring Lake. The number of plants taken in Utah in 1877 numbered around 500 (McVaugh 1956), and it was from this series that the bulk of his Utah types were named. Palmer depended on others to name his plants.

Mrs. Thompson, Captain Bishop, and Lester Ward were associated with the Powell surveys of the early-day geological survey. They worked in southwestern, south central, and central Utah. Mrs. Thompson lived for a while at Kanab in 1872, and her collections are from that period. Bishop's collections are from 1872 and 1873, but with little if any provenience data. Some materials credited to Mrs. Thompson obviously came from some distance away from Kanab and were probably taken by members of the Powell survey, including her husband, Almon Harris Thompson.

Bishop was born in New York. He enlisted in the Union army at the age of 17. He was made second lieutenant at the battle of Bull Run first lieutenant at the battle of Antietam,

and he was badly wounded at the battle of Fredericksburg. He was discharged with the rank of captain, a title which he carried for the remainder of his life. After the war he attended Illinois Wesleyan University, where one of his instructors was Major John Wesley Powell, whose second expedition he joined as topographer. Following his work with the Powell survey, Bishop joined the faculty of the University of Deseret as professor of science in 1873, where he served until 1877 (Chamberlain 1950). The delicately beautiful *Astragalus episcopus* Wats. is named in his honor.

Ward evidently centered his efforts in the vicinity of the Aquarius Plateau and Rabbit Valley, working out of the hamlet of Glenwood, Sevier County. The handsome milk-vetch with diaphanous inflated pods, *Astragalus wardii*, was named in his honor by Gray, and the beautiful low twinpod, *Lesquerella wardii*, was named by Watson. His locality information is much better than provided by any of his contemporaries, but there has been evident confusion associated with his labels (Pennell 1920). He was a man of many interests, with expertise in geology, paleobotany, botany, and sociology. Ward published papers in all of those subjects. For a time he was a clerk and librarian at the U.S. Bureau of Statistics. His collections in Utah are from the vicinity of Glenwood, Twelve Mile Canyon, Rabbit Valley, Dirty Devil River, The Button, and Aquarius Plateau (Ewan 1950).

Others who collected type materials in Utah in the 1870s were Lt. George M. Wheeler, Andrew Lafayette Siler, and Townshend Stith Brandegee. The collections of Wheeler are treated, at least in part, in his publication in the United States Geographical Surveys west of the 100th Meridian (Wheeler 1878). Wheeler had little sense of history, as indicated in the total lack of geographical information about plants he collected. Apparently he took some plants in Salt Lake County, as indicated in a letter by Marcus E. Jones, dated "8. 1. 1904" (on file at BRY), in which he intimated that Wheeler, too, had collected *Collomia debilis* in Salt Lake County, but without recording the locality. Brandegee worked with one of the government surveys, mainly in present-day San Juan



County. Siler, a Mormon rancher, lived at a place called "Ranch" near Kanab and took specimens in Kane and adjacent Mohave (in Arizona) counties. He was much interested in cacti and sent a collection of a low depressed-hemispheric ball-cactus to Engelmann, which was later named by Britton and Rose as *Utahia sileri*. Jones (Contr. W. Bot. 16: 46-47. 1930) says of Siler: "He was about seven feet tall; and slim as a rail, and wore about a No. 14 shoe. He was awkward and uncouth, but a real man." Unfortunately, the type of the genus commemorating the state of Utah was collected in the vicinity of Pipe Springs, in Arizona, and that generic name is now synonymized within an expanded *Pediocactus*. Siler's collections are mainly at GH and MO (Ewan 1950).

The 1880s were relatively quiescent when compared to the efforts and successes recorded in the statistics of the 1870s. Together, M. E. Jones, Fred Eugene Leonard, Samuel Mills Tracy (alone and with someone named Evans), and William Trelease collected some 54 types. Jones worked in Washington County in 1880, and widely in Utah in later years of the decade. Leonard took specimens in northern Utah, especially in Salt Lake County. His collections were sent east, where they were named later by Rydberg. William Trelease stopped briefly at Helper in 1889, in transit to St. Louis, Missouri, after spending the summer with the Harriman Alaska Expedition. He collected the type of a yucca that he named in honor of Mrs. Harriman.

Jones moved to Utah in 1880, to Salt Lake City, where he was to reside until 1923. At first he taught in the old Salt Lake Academy, a congregational school. From 1881 to 1885 he conducted a private high school. He was one of the early members of the Utah Natural History Society, of which he was president in 1899, and a fellow of the AAAS. Jones was curator of the museum and librarian at the University of Utah for the year 1889-90. His large herbarium of western plants was stored for a time at the University of Utah (Chamberlain 1950), and it was from there that the collection was retrieved by Dr. P. A. Munz and taken to Pomona College in the 1920s (Richard Shaw, personal communication 1982).

The greatest era for collection of Utah plant types occurred in the 1890s. Marcus E. Jones was the main contributor of type materials. Of the 259 types taken during the decade, Jones was responsible for 193 of them. Jones was employed in 1894 by the U.S. Department of Agriculture as "Special Field Agent" (Jones 1895). He was able to spend the entire field season collecting plants. According to his own account (see Leaflet W. Bot. 10: 208-217. 1965), Jones outfitted a team and buggy that he sent south in early March with a young man as driver. The driver and outfit proceeded to Holden, where they were trapped by a late winter storm. Jones traveled by train to Oasis, where he hired a team and reached Holden in a blizzard. Jones's account is as follows: "The next morning we drove out into the snow and toiled all day in a cloudless sky with the sun dazzling in our faces and by night our faces were burnt to a blister and the serum was oozing off our chins. That night we camped on the desert in a foot of spotless snow where there was hardly enough brush to make a fire and no water but snow. A better bed I never slept



Fig. 2. Alice Eastwood and John Thomas Howell (1936), near Yakima Park, Mt. Ranier, contributors to understanding of botany in Utah and the West (photo by Edith Hardin English, courtesy of John Thomas Howell).

on. The next morning it was bitterly cold to get out of bed and get a fire started in that snow, but warm tea soon thawed us out. That night we slept in mud near Black Rock and the next day were at Milford. Our faces were now all scabs and sores and we looked as though we were suffering from some loathsome disease." Jones was to be in the field, except for short pauses in Salt Lake City, until the 18th of October. During the 1894 field season he collected in Washington, Kane, Garfield, Piute, Sevier, Emery, Carbon (then a part of Emery County), Utah, Sanpete, and Wayne counties. His collections amounted to 4060 numbers, a total of about 35,000 specimens. Never again would anyone have such an opportunity.

The next most important collector of the decade was Alice Eastwood. Born in Canada in 1859, she moved to Denver, Colorado, in 1880, where she taught high school for several years. She was able to devote her life to the study of plants by living initially on the proceeds gained through investment. In 1892 she traveled from Thompson's Springs (present day Thompson) in Grand County south to San Juan County. A second trip was undertaken from Mancos, Colorado, west to Willow Creek in San Juan County, Utah, in the

summer of 1895. These trips allowed her access to some of the most remote and rugged country in the southeastern portion of the state. She was able to collect numerous plants on both occasions, among them the types of some of our most unusual plant taxa. Her interest in the region was to continue until her death in 1953 at the age of 94. Her final trip to the state (with John Thomas Howell) was in 1941. Type collections taken by her in Utah span 50 years, longer than for any other contributor. On at least the 1895 expedition she was accompanied by B. Alfred Wetherill, famous for his part in the discovery of the Pueblo dwellings at Mesa Verde, and later pioneer archaeologist in the region. He was to send some few things to Miss Eastwood, and this accounts for his inclusion on the list of Utah plant type collectors.

Two other important figures in Utah plant taxonomy appear among the cast of collectors in the 1890s. They are Per Axel Rydberg, a young immigrant from Westergoethland, Sweden, and Aven Nelson, natural history professor at the infant University of Wyoming. Rydberg had arrived in the United States in 1882 and was about to complete his doctorate at the University of Nebraska, where he wrote a conservative treatment of the Rosales of Nebraska. Later he would contribute numerous critical publications of the Rocky Mountain flora, and would have an overwhelming role in the botany of the West. His trip to Utah in 1895 seems not to have been long, and he picked only a few things, mainly in the vicinity of Logan. More will be said of him in later parts of this paper. Nelson had only recently arrived at Laramie (in 1887), where he had accepted a position to teach English, but upon his arrival there found that another English teacher had been hired. He was offered the chair in natural history instead, and was to contribute to knowledge of western American botany for more than five decades.

Completing the list of collectors of types for the decade were Carl Albert Purpus (a German), James Henry Linford (a Utah native), and A. Isabel Mulford, a student of William Trelease at the Missouri Botanical Garden (Ewan 1950). Purpus collected in the La Sal Mountains and in southwestern Utah. Linford's collections are from the northern



Fig. 3. John Torrey (1868), author with John Charles Fremont and Asa Gray of specimens taken in Utah by Fremont and by Captain Howard Stansbury, teacher of Charles Christopher Parry, and correspondent of Parry, Palmer, and others (photo courtesy of Richard W. Pohl).

Wasatch Mountains, chiefly from Logan Canyon, and the place of deposition is unknown. Mulford traveled through the central and northern regions.

The period from 1900 to 1909 was marked by a decline in types collected. The total number taken was 105, a large number by modern standards, but low when compared to the previous decade. Too, the number of contributors increased. Jones continued to be active, but what does one do for an encore following such a performance as his of the 1890s? Jones took only 17 types, and Rydberg (alone or with Carlton) accounted for 24 types. That Jones was active is indicated by his collections, which yielded type materials for the years 1900, 1903, 1906, 1908, and 1909. Rydberg's contributions were taken in 1905 from Salt Lake County and from the Tushar Mountains, astride the Piute-Beaver counties boundary. The other most important collectors of this time, as regards historical perspective, include Ivar Tidestrom, who was to publish a flora of Utah and Nevada, and Albert Osburn Garrett, resident Utah botanist and teacher for more than four decades. Susan Stokes (who later treated *Eriogonum*), Grove Karl Gilbert (?), Leslie Newton Goodding (student of Aven Nelson), Louis Hermann Pammel and R. E. Blackwood, S. J. (?) Harkness, Frederick Vernon Coville (along with Tidestrom), Carleton Roy Ball (of willow fame), and Charles Piper Smith (producer of infamous works in *Lupinus*) each contributed one or more types during the decade.

The 60 types taken from 1910 to 1919 represented a further decline, emphasized even more by the efforts of 13 collectors for this period. Rydberg, alone and with Albert Osburn Garrett, worked in Salt Lake, Grand, and San Juan counties in 1911. Their work in the southeastern portion of Utah was the first serious attempt at understanding the flora of that region following the pioneer work of Alice Eastwood. Their collections were rich in type materials. C. P. Smith, A. O. Garrett, Willard Webster Eggleston, E. P. Walker, Thomas Henry Kearney and Homer LeRoy Shantz, Edwin Blake Payson, Francis Whittier Pennell, Malmsten, Ricker, and Alice Eastwood provided type material during this time.

The 1920s were a time of transition. Utah was involved in the consequences resulting from World War I, and the field botanists of the early part of the century were involved in activities that did not include active field investigations. Jones sold his collection to Pomona College in 1923 and left Utah for California, where he resided until his death in 1934. Rydberg was involved in completion of parts of the North American Flora and was to pass from the scene upon his death in 1931. The scenario shifted from these actors, who had played such important roles in discovery, to others, most of whom did not occupy the stage for any lengthy period. Only 19 types were added by nine collectors. Jones took his last in 1923, in Zion Canyon, returning to the region of his early pursuits in his old age. A. O. Garrett continued to add specimens during the period. His contributions have never received the meritorious notice that they deserved, although the herbarium at the University of Utah bears his name. Although Garrett founded an herbarium at East High School in Salt Lake City in 1903, his private collection resides at the University of Utah, to which it was given under terms of a bequest following his death in 1948. It is the best early collection extant in Utah.

Walter Pace Cottam entered the botanical scene in the 1920s. He graduated from Brigham Young University with a Master of Science degree in 1917 (the first awarded by the university). He returned to the university as a professor in the early part of the 1920s and began a lifetime investigating the state of Utah. His primary emphasis did not lie with plant taxonomy; he is known for his work in plant ecology. Plants were contributed to the herbarium of Brigham Young University as a byproduct of his investigations of the ecology of the region. He inspired others to follow him into the field and, in fact, has served as an inspiration to generations of scholars. In 1931 he joined the University of Utah and served to found that herbarium also. His early collections are at Brigham Young University and the later ones are at the University of Utah. The herbarium at the University of Utah was founded in 1870 (Chamberlain 1950), prior to Cottam's arrival there, but most of the collections had been destroyed,



misplaced, or pilfered by that time. He established the herbarium on a permanent basis in 1933. He had founded the herbarium at Brigham Young University in 1923. The Utah State University herbarium was formalized in 1934.

Other collectors during the 1920s were E. B. Payson (botanist at the University of Wyoming), Charles Piper Smith (professor of botany at Utah State during the period 1909-12, Ewan 1950), Pilsbry, George Everett Osterhout (amateur botanist and lumberman, whose herbarium is at RM), Nord & Sargent, Fallas, and Mildred Esther Mathias. Payson worked on revisions of genera important in our flora, i.e., *Thelypodium* and its relatives and *Cryptantha* (as *Oreocarya*). Mildred E. Mathias treated the complex and difficult genera in the Umbelliferae.

With Rydberg and Jones both gone from the scene, the 1930s became a time for re-evaluation of western American plant taxonomy. The divergent views of taxonomy as exemplified by them were put to the test by no less than 30 individuals who worked in Utah in the decade. Some of these, William D. Stanton (a student of Cottam who worked on the flora of the Henry Mountains), A. O. Garrett, Bassett Maguire, Edward H. Graham, Bertrand F. Harrison, Seville Flowers, and Perry Plummer, made concerted efforts at continuing the exploration of the state. Others were mainly involved in summary revisions and monographs of plant genera whose members included Utah as a portion of their ranges. Within this category were George Goodman, Charles Leo Hitchcock, Mildred Mathias, Louis Otho Williams, Frederick Joseph Hermann, Alice Eastwood and John Thomas Howell, Susan Stokes, E. B. Payson, Howard Baker, Reed Clark Rollins, Cedric Lambert Porter (curator of the herbarium at RM for many years), and Susan Delano McKelvey. Minor contributions were made by collectors named Larson, Clawson, Carter, F. A. Barkley and M. J. Reed, and Tompkins.

There occurred a shift within the state during the 1930s. Bassett Maguire had arrived as plant taxonomist at Utah State University (then Utah State Agricultural College) in 1929. Maguire was the first professional plant taxonomist to be employed on a continuing

basis by any of the major universities, at least as far as vascular plants were concerned. He was an enthusiastic collector and teacher. His collections within Utah and the surrounding states formed the basis of the herbarium at Utah State. That herbarium became the center of plant taxonomy in Utah in the 1930s under Maguire's direction, and continued to hold that status under his student and successor, Arthur H. Holmgren.

The herbarium at Brigham Young University came under the direction of Bertrand F. Harrison following Cottam's move to Salt Lake City. Harrison was trained in plant physiology, but continued to build the herbarium throughout his tenure at Provo. This was accomplished during a time when he served as chairman of the department of botany, taught 15-25 hours of classes per week (in all botanical disciplines), and functioned on university committees. His favorite class was plant taxonomy, and he instilled the same kind of enthusiasm in his students that he had experienced under the direction of Cottam, who had taught him taxonomy in the 1920s. Slow was the growth of the collection in this period of economic depression and difficulties of travel in the remote regions of Utah. Nevertheless, both Harrison and Cottam were able to contribute substantially to the understanding of the flora and its ecology.

The work of Maguire and his associates clearly places Utah State at the center of taxonomic study in Utah during the 1940s. Maguire, Holmgren, and C. L. Hitchcock (with whom Maguire collaborated), formed a nucleus about which Utah taxonomy functioned. Other workers, all from outside Utah, collected in the state in the decade. Elzada Clover and Lois Jotter traversed Glen Canyon in 1940. Alice Eastwood (then in her 83rd year) and J. T. Howell were in Utah in 1941, allowing Miss Eastwood a final view of the scenes of her earlier explorations. Dwight Ripley and the amazing Rupert Charles Barneby (already working on in his revision of the monumental genus *Astragalus*) visited the state first in 1942. Barneby, an Englishman, with field experience in Spain, where he first encountered the genus *Astragalus*, was inspired to come to North America after seeing the name of *Astragalus asclepiadoides*

in a catalogue of North American plants. He then examined the single specimen taken by Jones on deposit at the herbarium at Kew and made the decision that he must see the plant in vivo. Lyman Benson, expert on *Ranunculus* and cacti, was in the state in 1948 and 1949. Frank Gould, specialist in grasses, collected here in 1941. A person named Marsh took materials in both 1945 and 1946.

The 1950s mark a period of quiescence in exploration and collection of Utah plant types. Maguire had left Utah State for the New York Botanical Garden, and the post World War II era found the professors involved with teaching and other pursuits, which did not allow them to allot much time to collecting. Fewer types were taken in this decade than any time since the 1850s. Arthur Hermann Holmgren, B. F. Harrison, C. L. Porter, Rupert C. Barneby, F. J. Hermann, and others contributed only 13 types in the period. The list gives Utah State and Brigham Young about equal, if unimpressive, billing.

Collectors during the 1960s were affiliated with Utah State (Arthur Holmgren, his son Noel Hermann Holmgren, and Garrett Davidge), New York Botanical Garden (Rupert C. Barneby and Johnnie L. Gentry), and Brigham Young University (Craig Hanson, Stanley Larson Welsh, Glen Moore, James Reveal, Larry Charles Higgins, Stella Leinomi Tree Welsh, and Nephi Duane Atwood). Ishan A. Al-Shebazz (of Harvard University) was the only other collector of Utah plant types in the decade. Personnel from Utah State and New York Botanical Garden were engaged in a collaborative study of the intermountain flora preparatory to publication of a manual of that flora. The school that developed at Brigham Young University resulted from the serendipity that followed the acceptance of the position of plant taxonomist (the first for the university) by Welsh in September of 1960. Welsh, his wife, and his students began a concerted effort at exploration of the flora of Utah. The nucleus of the herbarium developed by Cottam and by Harrison allowed for continued expansion as the flora of the state was investigated. Exploration and collection produced some 50 specimens that have been named as types at the present.

During the 1970s some 47 type specimens were taken. The essential group of collectors remained largely the same as in the previous decade, but there was some shift in institutional affiliation and new names appeared. Noel and Patricia Kern Holmgren became affiliated with New York Botanical Garden, and James Reveal was employed by the University of Maryland. Leila Shultz joined Arthur Holmgren as curator of the herbarium at Utah State University late in the decade. The roster of people at Brigham Young University who aided in collection of type materials include S. L. Welsh, N. D. Atwood, Joseph Richard Murdock, Frederick J. Peabody, Kaye Hugie Thorne, Kathryn N. Taylor, Elizabeth Janet Chase Neese, Susan White, Kent Ostler and David Anderson, Kim Despain, Betty Jean Welsh, and S. L. T. Welsh.

#### COUNTIES OF COLLECTION

An examination of types taken on a per county basis is instructive as to where emphasis was given in early botanical excursions. Data on types by county are presented in Table 3. Washington County was and is a favorite site for investigations by those tired of the cold and snow of winter, and, because of the warm desert vegetation, which reflects its climate, many people traveled there to collect. Palmer, Parry, and Jones were there



Fig. 4. Daniel Cady Eaton (1864), author of the *Compositae* in Watson's *Botany*, who is honored by the name *Penstemon eatonii* Gray (photo courtesy of Richard W. Pohl).

early, in the 70s and 80s, when many of the taxa were undescribed. Because of their attention to that delightful region for early spring and autumn floras, Washington County stands in first position with 163 types. Salt Lake County is second with 102, in part because of its unique flora that extends from moderate to very high elevations, and in part because of its position within the state. Early taxonomists visited Salt Lake City, center of commerce and hub of transportation for this vast region. Access to the mountainous areas around the valley of the Great Salt Lake was relatively easy for those operating from this base. Jones's visit to the Wasatch Mountains in 1879 yielded many types. Watson, Jones, Rydberg, Garrett, Stokes, and many others spent time in the canyons and ranges in close proximity to Salt Lake City. The large number of types from San Juan and adjacent Grand counties is attributable in large part to the early work by Eastwood and Rydberg and Garrett. Garfield County owes its large

compliment of types to the early work by Rydberg, and to later attempts by more recent collectors. Summit County became important in types largely, I believe, because of the access to the westernmost portion of the Uinta Mountains, and especially because of the early trip to the area by Watson.

Tremendous effort and expense is necessary for exploration of the state. Most of the remaining endemics, if past experience is correct, will be found in areas that remain to be explored in remote parts of the state. Each year a few more are discovered, and with each new generation of monographers additional types will be designated from among collections of the previous years.

#### AUTHORS OF TAXA BASED ON UTAH TYPES

Those who collect types may or may not be prepared to describe taxa based on them. Indeed, few are those who recognize, immediately upon collection, that the material collected is undescribed. Often, new taxa are made to fit into concepts of previously described entities, whether they fit well or not. Each worker is acquainted with only a portion of the variation of the total flora, and few consider themselves sufficiently prepared to name as new all portions of the variation encountered by them. To some investigators any variation is worthy of a name, regardless of the importance of that characteristic in the total range of variation available. To them the value of a single character is overriding—the character makes the species, as Linnaeus stated. Because of differences in training, philosophy, and expertise, and others due to change in understanding over more than a century of time, the lasting quality of names recognized as belonging to viable entities varies from author to author, and from group to group treated by the same author. There have always been more specialists involved with naming than with collecting. Because of this, many authors never saw the taxa that they named *in vivo*—they were herbarium botanists with experience in dried and pressed plants only. Among the herbarium botanists quality of judgments varied as much as between them and their field-experienced counterparts. Gray and Watson represent the two extremes, and both were

TABLE 3. Utah types listed by county of collection.

County	Number
Beaver	25
Box Elder	7
Cache	28
Carbon	21
Daggett	3
Davis	9
Duchesne	19
Emery	45
Garfield	56
Grand	43
Iron	20
Juab	23
Kane	59
Millard	19
Morgan	1
Piute	35
Rich	2
Salt Lake	102
San Juan	85
Sanpete	22
Sevier	48
Summit	53
Tooele	36
Uintah	33
Utah	30
Wasatch	9
Washington	163
Wayne	26
Weber	4
Unknown	47
Total	1073



successful descriptive botanists whose named taxa have stood the test of time. The syndrome of "name in print at any cost" afflicted only a few of the major authors (i.e., Edward L. Greene and Charles Piper Smith). The names of authors of Utah types are listed in Table 4. The decade of publication of Utah types, number of authors, and average number of names per author are cited in Table 5.

There has always been a disparity among botanists regarding species concept and application of names. As there has always been a problem of distinguishing between nomenclature and taxonomy, a problem has also existed between botanists in the recognition of species in which infraspecific categories are allowed. Some have chosen to draw species concepts that are broad and allow for the inclusion of several infraspecific taxa in a hierarchical system. Others have felt that such a nested system, in which species, subspecies, varieties, subvarieties, and forms were allowed, represented a return to pre-Linnaean phrase names. To them such usage was and is intolerable; the binomial system of nomenclature should be adhered to at all costs. When this concept is followed, and when it is coupled with the concept that any variant is worthy of a name, it is possible to multiply names inordinately.

Names based on Utah types were supplied by workers from both of the divergent schools, and by others between. Still other workers were not bound by the sense of logic provided by either school; they were self-taught and were trapped in their preconceived notions that any variation constituted a case for a new species, and that the species were immutable. Because of the differences in approach, in understanding, and in training, our Utah plants were given a variety of treatments. The variation among botanists today is not as great, but there is still variation. A current move has been to recognize only one infraspecific category, the subspecies. If such a move were to succeed, then all variants now recognized at other infraspecific levels would be treated as subspecies, and levels of variation would be hidden by the apparent uniformity of the category. It is true, of course, that taxonomy should not be dependent upon nomenclature,

but where the disciplines can supplement each other that course seems best to this worker.

Some of the cast of authors is the same as for the list of collectors, but many are different. Noted is the fact that some of the collectors of many types failed to publish new taxa based on their own collections. That task fell to others, either by default or on purpose. One will note that Jones named only 167 taxa but collected some 305. The others were named by some 44 botanists during and subsequent to Jones's lifetime, the latest by Reveal (1977). This was particularly disturbing to Jones, not because others purloined his material, but because he did not feel that most of them were worthy of being named.

The 1840s demonstrate only two authors of Utah taxa, i.e., John Torrey and John Charles Fremont, and John Torrey and Asa Gray. Torrey was situated at Columbia College, New York, and Fremont was then engaged in explorations of the West. Later, Fremont would be a candidate for the presidency of the United States (in 1856). Together they named *Perchiton occidentale* (Torrey & Fremont 1845). Torrey and Asa Gray collaborated in naming *Gilia stenothyrsa* and *Senecio multilobatus* (Torrey and Gray 1849). All these taxa are based on specimens taken by Fremont. Asa Gray, working out of



Fig. 5. Sereno Watson (ca 1870), collector and author of Utah plant types, second in importance only to Marcus E. Jones (photo courtesy of Richard W. Pohl).

Harvard University, was the principal 19th-century American plant taxonomist; his contributions are legion.

Five authors described taxa based on Utah types in the 1850s. These include John Torrey, Torrey and Gray, Elias Durand, George Bentham, and Edward Griffin Beckwith. Their published taxa are based on collections by Stansbury, Creuzfeldt, Beckwith, and Carrington. Seven of the 12 taxa stand at some taxonomic level in contemporary treatments. Perhaps the best known of the taxa described in the decade is *Phaca mollissima* var. *utahensis* named by Torrey and now cited as *Asragalus utahensis* (Torr.) T. & G. Torrey and Gray were the principal American taxonomists of the period. John Torrey (1796–1873) was a professor at Columbia College. He became associated with Asa Gray (1810–1888), his student, in writing a "Flora of North America" (1838–1840). Gray

Table 4 continued.

TABLE 4. Authors of names of Utah plant types.

Author	Number of names	Years active
Al-Shehbaz, I.A. (b.?)	1	1973
Anderson, L.C. (b.1936)	1	1981
Atwood, N.D. (b.1938)	4	1972–73
Bailey, L.H. (1858–1954)	1	1884
Baker, M.S. (1868–1961)	2	1938–40
Baker, M.S. (1868–1961) & J.C. Clausen (b.1891)	1	1949
Ball, C.R. (1873–1958)	1	1921
Barkley, T.M. (b.1934)	1	1963
Barneby, R.C. (b.1911)	22	1942–66
Barneby, R.C. (b.1911) & N.H. Holmgren (b. 1937)	1	1979
Beal, W.J. (1883–1924)	1	1896
Beaman, J.H. (b.1929)	2	1957
Benson, L.D. (b.1909)	3	1948–69
Bentham, G. (1800–84)	1	1856
Bicknell, E.P. (1859–1925)	1	1901
Blake, S.F. (1892–1959)	7	1922–37
Brand, A. (1863–1930)	9	1907–11
Brandege, M.K. (1844–1920)	2	1900
Brenckle, J.F. (b.1875) & W.P. Cottam (b.1875)	1	1840
Britton, N.L. (1859–1934)	2	1904–08
Britton, N.L. (1859–1934) & J.N. Rose (1862–1928)	1	1923
Buchenau, F.G.P. (1831–1906)	1	1890
Candolle, A.L.P.P. (1806–93)	1	1864
Chaudhri, M.N. (b.1932)	1	1968
Clover, E.U. (b.1897) & M.L. Jotter (b.1914)	1	1941
Cockerell, T.D.A. (1866–1948)	2	1904
Cottam, W.P. (b.1894)	1	1939
Coulter, J.M. (1851–1928) & J.N. Rose (1862–1928)	8	1888–1910
Coville, F.V. (1867–1937)	3	1892–93
Cronquist, A.J. (b.1919)	9	1943–63
Darlington, J. (b.1905)	1	1934
Daston, J.S. (b.?)	3	1946
Dempster, L.T. (b.1905) & F. Ehrendorfer (b.1927)	2	1965
Durand, E.M. (1794–1873)	2	1860
Earle, W.H. (b.?)	1	1980
Eastwood, A. (1859–1953)	38	1893–1942
Eaton, D.C. (1834–1895)	15	1871
Ehrendorfer, F. (b.1929)	2	1956
Engelmann, G. (1809–84)	13	1871–96
Engler, H.G.A. (1844–1930) & E. Irmischer (1887–1968)	1	1916
Fedde, F.K.G. (1873–1942)	2	1909–13
Flous, M.F. (b.?)	1	1934
Flowers, S. (1900–1968)	1	1949
Gandoger, M. (1850–1927)	9	1905–20
Garrett, A.O. (1870–1948)	1	1917
Gates, R.R. (1882–1962)	1	1915
Gentry, J.L. (b.?)	1	1979
Goodding, L.N. (b.1880)	5	1904
Goodman, G.J. (b.1904) & C.L. Hitchcock (b.1902)	1	1932
Could, F.W. (b.1913)	1	1942
Gray, A. (1810–1888)	65	1852–84
Greene, E.L. (1843–1915)	44	1896–1912
Greenman, J.M. (1867–1951)	5	1914–17
Greenman, J.M. (1867–1951) & E.M. Roush (b.1886)	1	1929
Hackel, E. (1850–1926)	1	1896
Hanson, C.A. (b.1935)	3	1962
Heil, K.D. (b.1941)	3	1979
Heimerl, A. (b.1857)	1	1902
Heiser, C.B. (b.1920)	1	1961
Heller, A.A. (1867–1944)	1	1905
Hermann, F.J. (b.1906)	2	1934–37
Higgins, L.C. (b.1936)	3	1968
Hitchcock, A.S. (1865–1935)	1	1933
Hitchcock, C.L. (b.1902)	6	1941–52
Hitchcock, C.L. (b.1902) & B. Maguire (b.1904)	1	1947
Holm, T.H. (1854–1932)	1	1891
Holmgren, A.H. (b.1912), L.M. Schultz (b.1946), & T.K. Lowrey (b.?)	1	1976
Holmgren, N.H. (b.1937)	8	1973–79
Holmgren, N.H. (b.1937) & A.H. Holmgren (b. 1912)	1	1974
Holmgren, N.H. (b.1937) & P.K. Holmgren	1	1979
Hopkins, M. (b.1906)	1	1937
House, H.D. (1878–1949)	1	1906
Howell, J.T. (b.1903)	4	1940–43
Johnston, I.M. (1898–1960)	6	1923–52
Jones, M.E. (1852–1934)	167	1880–1933

Table 4 continued.

Author	Number of names	Years active
Klein, W. (b.?)	1	1962
Koehne, B.A.E. (1848-1918)	1	1895
Kuntze, C.E.O. (1843-1907)	5	1885-95
Leveille, A.A.H. (1863-1918)	1	1905
Macbride, J.F. (1892-1976)	3	1916
Macbride, J.F. (1892-1976) & E.B. Payson (1893-1927)	1	1917
Mackenzie, K.K. (1877-1934)	1	1917
Maguire, B. (b.1904)	18	1941-51
Maguire, B. (b.1904) & A.J. Cronquist (b.1919)	1	1947
Maguire, B. (b.1904) & A.H. Holmgren (b.1912)	1	1946
Maguire, B. (b.1904) & R.E. Woodson (1904-1963)	1	1941
Marshall, W.T.	1	1954
Martin, R.F. (b.1910)	1	1940
Mathias, M.E. (b.1906)	2	1930-32
McKelvey, S.D. (b.1883)	2	1947
Mez, C.C. (1866-1944)	1	1921
Morton, C.V. (1905-1972)	1	1937
Munz, P.A. (1892-1974)	2	1928-31
Murray, E.	1	1980
Neese, E. (b.1934) & S.L. Welsh (b.1928)	1	1981
Nelson, A. (1859-1952)	32	1900-45
Nelson, A. (1859-1952) & J.F. Macbride (1892-1976)	1	1916
Nelson, E.E. (1876-1949)	2	1899-1901
Norton, J.B.S. (1872-1966)	1	1899
Osterhout, G.E. (1858-1937)	1	1926
Ottley, A.M. (b.1882)	1	1944
Ownbey, G.B. (b.1916)	1	1958
Parry, C.C. (1823-1890)	3	1874-75
Payson, E.B. (1893-1927)	5	1915-26
Pennell, F.W. (1886-1952)	17	1920-37
Petrak, F. (1886-1973)	3	1917
Pilger, R.K.F. (1876-1953)	1	1922
Piper, C.V. (1867-1926)	1	1899
Porter, C.L. (b.1905)	3	1952
Purpus, J.A. (1860-1932)	1	1909
Raven, P.H. (b.1936)	2	1962-69
Rechinger, F.	1	1936
Reveal, J.L. (b.1941)	24	1966-77
Reveal, J.L. (b.1941) & J.D. Brotherson (b.1938)	3	1966-68
Robbins, J.W. (1801-1879)	1	1871
Robinson, B.L. (1864-1935)	1	1917
Robinson, B.L. (1864-1935) & J.M. Greenman (1867-1951)	1	1899
Rollins, R.C. (b.1911)	9	1937-81
Rosendal, C.O. (1875-1956), F.K. Butters (1878-1945), & O. Lakela	1	1936
Rydberg, P.A. (1860-1931)	150	1900-29
Schneider, C.K. (1876-1951)	4	1905
Schulz, O.E. (1874-1936)	2	1924-27

Table 4 continued.

Author	Number of names	Years active
Scribner, F.L. (1851-1938)	1	1911
Scribner, F.L. (1874-1938) & T.A. Williams (1865-1900)	1	1899
Sharp, W.M.	1	1935
Sheldon, E.P. (b.1869)	3	1894
Shultz, L. (b.1946) & J. Shultz (b.?)	1	1980
Slosson, M. (b.1873)	1	1914
Small, J.K. (1869-1938)	5	1898-1905
Smiley, F.J. (b.1880)	1	1916
Smith, C.P. (1877-1955)	11	1948-51
Smith, J.G. (1866-1925)	1	1899
Standley, P.C. (1884-1963)	1	1916
Stockwell, W.P. (1898-1950)	1	1940
Stokes, S.G. (1868-1954)	14	1903-36
St. John, H. (b.1892)	1	1915
St.-Yves, A. (1855-1933)	1	1925
Suksdorf, W.N. (1850-1932)	2	1931
Swallen, J.R. (b.1903)	1	1931
Thurber, G. (1821-1890)	1	1871
Tidestrom, I. (1864-1957)	8	1910-14
Torrey, J. (1796-1873)	9	1850-71
Torrey, J. (1796-1873) & J. C. Fremont (1813-1890)	1	1845
Torrey, J. (1796-1873) & A. Gray (1810-1888)	9	1849-70
Trelease, W. (1857-1945)	3	1896-1907
Tuzson, J. (b.1870)	1	1921
Underwood, L.M. (1853-1907)	1	1898
Vasey, G. (1822-1893)	2	1876-93
Voss, J.W. (b.1907)	1	1937
Wagner, W.L.	1	1981
Watson, E.E. (1871-1936)	1	1929
Watson, S. (1826-1892)	88	1871-88
Watson, T.J. (b.?)	1	1977
Weber, W.A. (b.1918)	2	1946
Welsh, S.L. (b.1928)	18	1970-80
Welsh, S.L. (b.1928) & N.D. Atwood (b.1938)	4	1975-81
Welsh, S.L. (b.1928) & R.C. Barneby (b.1911)	1	1981
Welsh, S.L. (b.1928) & S. Goodrich (b.1943)	8	1980-81
Welsh, S.L. (b.1928) & G. Moore (b.1917)	1	1963-68
Welsh, S.L. (b.1928) & E.J. Neese (b.1934)	1	1981
Welsh, S.L. (b.1928) & J.L. Reveal (b.1941)	6	1968-77
Wherry, E.T. (b.1885)	2	1943-44
White, T.G. (1872-1901)	1	1894
Williams, L.O. (b.1908)	4	1932-37
Williams, T.A. (1865-1900)	1	1899
Wootton & Standley	1	?
Yuncker, T.G. (b.1891)	1	1960
TOTAL	1073	



was to be associated with Torrey throughout his life, and in a biography compiled at Torrey's death, Gray (1873) noted that "... he went again across the continent to California, and ... enjoyed the rare pleasure of viewing in their native soil, and plucking with his own hands, many a flower which he had himself named and described from dried specimens in the herbarium, and in which he felt a kind of paternal interest."

The 1860s did not offer much in the way of opportunity for description of Utah plant taxa. Torrey and Gray described *Navarretia setosissima*, and de Candolle named *Quercus stellata* var. *utahensis*, based on a collection presumably taken by Beckwith "between Salt Lake City and the Sierra Nevada" in 1854.

Sereno Watson and Asa Gray dominated the botanical literature dealing with Utah plant types in the 1870s. They were joined by John Torrey, Daniel Cady Eaton, James Watson Robbins, George Vasey, George Engelmann, Lester Frank Ward, and Charles Christopher Parry in the publication of some 161 taxa. The most important single work of the decade is the report of the U.S. Geological Survey of the 40th Parallel, Volume 5, Botany, authored by Watson (1871), but in collaboration with D. C. Eaton (honored in the name *Penstemon eatonii* Gray), George Engelmann, and J. W. Robbins. The work included 51 taxa based on Utah types (39 by

Watson, 10 by Eaton, one by Engelmann, and one by Robbins), mainly collected by Watson and Eaton in 1869. Watson ranks second only to Jones in number of types collected, and is third after Jones and Rydberg in the number of taxa described on the basis of Utah type material.

The tremendous effort of the 1870s appears to have almost exhausted the botanical authors. The 1880s were, by contrast, relatively quiescent. Only 27 taxa established on Utah plants were named in the period. Gray named 13; Watson only two. The remainder were divided among Vernon Bailey, Otto Kuntze, and John Merle Coulter and Joseph Nelson Rose. Marcus E. Jones sent his early collections taken during this period to Gray and Watson, but when he felt unjustly controlled by their editorship of some eastern journals, Jones bided his time until Gray was dead (in 1888), before beginning to publish in earnest in the 1890s.

If the 1880s were relatively quiet, they were a calm before the storm. The death of Gray in 1888 and of Watson in 1892 allowed for an increase of activity across the West. The removal of these two giants of American taxonomy from the scene coincided with the coming of age of Jones in his exploration of Utah. His species concepts had been obtained from his early training, when Gray's *Manual of Botany* (published in 1867) had influenced him. He had received reinforcement in his concept by early contact with Gray but most especially, from his application of earlier perceived concepts with plants as he found them in the field. Jones, with only a meager contribution in the 1880s, named a staggering 118 taxa from Utah in the 1890s, 75 of them in a single publication (Proc. Calif. Acad. II, Vol. 5, 1895). Jones did not occupy the field alone. Some 24 others authored taxa from among the wealth of undescribed botanical materials. The list of authors includes: Bernard Adalbert Emil Koehne, Franz George Phillipp Bucheneau, Carl Ernst Otto Kuntze, Herman Teodor Holm, Fredrick Vernon Coville, A. Eastwood, George Vasey, Edmund Parry Sheldon, Theodore Greely White, Edward Lee Greene, William James Beal, John Kunkel Small, Eduard Hackel, William Trelease, George Engelmann, Per

TABLE 5. Decade of publication of Utah types, number of authors, and average number of names per author.

Decade	Number of names	Number of authors	N/A
1840-49	2	2	1.0
1850-59	14	5	2.8
1860-69	4	3	1.3
1870-79	166	10	16.6
1880-89	27	6	4.5
1890-99	181	24	7.5
1900-09	180	18	10.0
1910-19	145	25	5.8
1920-29	59	19	3.1
1930-39	61	27	2.3
1940-49	75	28	2.7
1950-59	25	11	2.3
1960-69	44	16	2.8
1970-79	56	14	4.0
1980-81	24	12	2.0
Total	1073	167	6.4

Axel Rydberg, Thomas Henry Kearney, Lucien Marcus Underwood, Aven Nelson, Thomas Albert Williams, Benjamin Lincoln Robinson, Jesse Moore Greenman, Jared Gage Smith, Charles Vancouver Piper, and Elias Emanuel Nelson. Alice Eastwood and Per Axel Rydberg were both beginning their activities within Utah; they would spend decades involved, in part, with the Utah flora. The decade was the golden age of descriptive botany in Utah, and in deference to Jones's contributions the decade should be known as the "Jonesian Era."

The decade from 1900 to 1909 showed only a slight decline in taxa named from the state when compared to the previous decade (180 compared to 181), with the deficit in types collected in that period (105) being made up by names being applied to specimens taken previously. Some 18 authors assaulted the collections of the state. Jones did not come close to matching his unparalleled feats of the 1890s. He named only 21 taxa in the decade. Rydberg, an enthusiastic and energetic professionally trained botanist, rushed to fill whatever vacuum was left following Jones's valliant efforts. Introduced to the region in the mid-90s, Rydberg had named only one taxon from Utah prior to the turn of the century. Now he assumed the leading position as author of 65 Utah types in the decade, in preparation for publication of his flora of the Rocky Mountains (1917). Principal authors besides Rydberg and Jones were Edward L. Greene (21 names) and Aven Nelson (20 names).

Rydberg had no close competition in the period from 1910 to 1919. He named another 65 taxa based on Utah materials, and Jones named only 14. The 1920s were the lowest for publication of new taxa since the 1880s. Only 59 taxa were named by 19 authors. Rydberg authored only 9, second to F. W. Pennell, then engaged in a revision of the genus *Penstemon*, who named 14 taxa.

Neither Jones nor Rydberg were to live beyond the early 1930s. Jones named a final 4 taxa in that decade. The period fell to Sidney Faye Blake (4), Alice Eastwood (4), Ivan Murray Johnston (2), David Daniels Keck (4), Aven Nelson (2), F. W. Pennell (3), and Susan Gabriella Stokes (12), largely without a leader. Leadership in the naming of Utah's plants

in the 1940s clearly belongs to Bassett Maguire, who accepted a position at Utah State Agricultural College in the 1930s. Others working in the flora of the state in the 1940s, who contributed names of new taxa, include Rupert Charles Barneby, Arthur John Cronquist, Alice Eastwood, C. Leo Hitchcock, John Thomas Howell, Ivan M. Johnston, and David D. Keck.

The 1950s were relatively quiet. This period was marked by the shift from efforts of World War II, and Bassett Maguire had left Utah State. Charles Piper Smith, in his senescence, and suffering from a lack of understanding of what constituted a species within *Lupinus*, named seven inconsequential lupines as species, all but one of them from the head of Salina Canyon, and all of those belonging to *Lupinus sericeus* in a broad sense. Barneby named five species during this period.

In the decade of the 60s Barneby (with 9 new taxa) was displaced by James Lauritz Reveal (with 15 new taxa) as leader in authorship of new names. Reveal had begun his assault on *Eriogonum*, a genus rich in endemic taxa and other narrowly restricted plants. Craig Hansen, James L. Reveal, and Larry



Fig. 6. Asa Gray (ca 1865), author of numerous Utah types, based on collections corresponded by Watson, Parry, Thompson, Siler, Bishop, Palmer, and Jones, and the most important North American plant taxonomist of the 19th century (photo courtesy of Richard W. Pohl).

Charles Higgins and Stanley L. Welsh, all associated with Brigham Young University, named a third of all species described during the decade.

Botanical exploration continued at an accelerated pace in the 1970s. Impetus for publication of the taxa discovered in this period was supplied by preparation of the grand plan for publication of the "Intermountain Flora" by members of New York Botanical Garden and associates. Included in that team are Arthur J. Cronquist, Arthur H. Holmgren, Noel H. Holmgren, Patricia K. Holmgren, and James L. Reveal. Noel Holmgren, alone or in combination with others of the group, published descriptions of 10 new taxa from Utah, and Reveal published 11.

Work on exploration of floristic provinces of Utah by botanists from Brigham Young University was expanded in the 1960s and was again intensified in the 1970s. The Utah Flora project, initiated in the 1960s, offered stimulus. Further activity was increased by passage of environmental protection laws, and especially by passage of the Endangered Species Act of 1973, as amended in 1978. Welsh, alone or with others, described 29 taxa in the decade. That is the largest number involving any individual since the 1910-1919 period. Atwood named 4, bringing the total for those at Brigham Young University to 33, or 61 percent of the total for the decade.

#### THE DECADES BEYOND

That the past is prologue is illustrated by the fact that several new taxa have been described from Utah since the close of the period covered by this text. Those which have been published are included in the list of type material, but they are not summarized as for previous decades. Too, I recognize that a decade does not begin with the zero year, but ends with it. For the sake of convenience on my part, I have chosen to use it otherwise. Those who follow can find fault, as all who view others' work must, but it will not materially affect the data presented here or my view of the history of plant collection in Utah. Perhaps some will find this summary useful, and possibly someone will choose to keep it current for the future.

#### MARCUS EUGENE JONES—HIS CONTRIBUTIONS AND HIS CONTEMPORARIES

In the summer of 1879 (Broaddus 1935) an event occurred which, because of its happenstance and because of its forthrightness, would not seem to have any lasting effect. A young botanist, on one of his earliest trips west from the rolling farmlands of Iowa, happened to find a wallet (Munz 1965) that belonged to a General Wm. J. Palmer. The wallet contained valuable papers and was returned to its owner. Following this act of an honest man, General Palmer sent the botanist, Marcus E. Jones, on repeated trips to explore regions for mining or agricultural potential. Jones was enabled to travel widely in the western portions of the continent, all because of serendipity—the finding and return of another's property. Because of this, western American plant taxonomy was altered for all time. He indicated his gratitude to Palmer (Jones 1891) by naming *Cleomella palmerana*; "Dedicated to General Wm. J. Palmer, than whom there is no one more interested in scientific researches in Utah, or who has shown more interest in a more substantial way."

Jones was born in Jefferson, Ashtabula County, Ohio, on 25 April 1852 and died at San Bernadino, California, in his 83rd year on 3 June 1934. He was reared and educated near Grinnell, Iowa, having moved west with his family in 1865 ("on the very day that Lincoln was shot"), graduating from Grinnell (Iowa) College in 1875 (Broaddus 1935). In 1876 and 1877 the youthful botanist collected plants in Iowa. Early in 1878 he left for Colorado, where he collected large numbers of specimens that were sold as "sets." He returned to Colorado Springs in 1879 as "professor of natural science." During July he traveled to Salt Lake City and collected at Alta, City Creek Canyon, Lake Point, and Bingham Canyon.

Jones moved from Iowa to establish permanent residence in Salt Lake City in 1880. Accompanying him was his bride (since February 18), Anna Elizabeth Richardson (1853-1916), who would spend most of the remainder of her life with Jones in Salt Lake City. Instructive is his account (Munz 1965) of the itinerary from Salt Lake City to



Washington County and return during the spring of 1880.

"I left Iowa Falls, Iowa, February 18th for Salt Lake City and got there the 24th. March 3rd I hired a team and started to drive to St. George. I reached Sandy. On the 4th I returned to Salt Lake and back to Sandy (having forgotten something). On the 5th reached Pleasant Grove, Spanish Fork on the 6th, Mona on the 8th, and Juab on the 9th, Warm Springs near Gunnison on the 10th, Willow Bend below Richfield on the 11th, Elsinore on the 12th, where I stayed three days and went 14 miles up the Clear Creek Canyon on the 18th. Then went seven miles farther on the 19th, then to Pine Creek fifteen miles above Beaver, Beaver on the 20th, Buckhorn Springs on the 22nd, Summit south of Parowan on the 23rd, then to Fort Hamilton on the 24th where I found the first spring flowers. I reached Leeds on the 25th and St. George on the 26th. I botanized all around the city on the plains and mesas until the 9th of April when I went over on the Santa Clara. On the 14th I went to Washington five miles east. On the 20th I started for Salt Lake and reached Bellevue. On the 21st got to Kanarrah (Kanarrah?). On the 22nd Fort Hamilton. On the 23rd Parowan. On the 24th. Beaver. On the 27th Corn Creek. On the 28 Fillmore. On the 29th to the ridge north of Scipio. On the 30th I reached Nephi. On May 1st I reached Spanish Fork. On the 3rd, I reached the Point of the Mountain and the 5th Salt Lake City."

One cannot find in Jones's rather voluminous published writings whether his young and beautiful bride of a few weeks accompanied him on this long and tiring trip. He makes no official acknowledgment that she did go with him. In an account of Anna Jones's life written by her daughter (Broaddus 1952), however, it is noted that "At first Anna went with him on wagon trips of incredible difficulty and danger, even as far as St. George in southern Utah, helping collect wild flower specimens, pressing and drying them, assembling sets for shipment to European and eastern herbaria, even mounting many of the most attractive flowers in little booklets of 'Western Flora,' which they sold." Probably she was on this first trip south; it is inconceivable to think otherwise.

His respect for women was less than overwhelming. Marcus (called Mark by his family and close friends) wrote of his great admiration and love for his mother (Jones and Broaddus 1952), but he demonstrated little regard for other women. His unpublished diary of 1880 (POM) cites his expenses on his wedding day, and then, almost as an afterthought, notes in the margin of the diary, "today I married Anna Elizabeth Richardson."

Anna Jones was a talented and educated woman, having taught school for several years from the age of 16, in Iowa Falls, Iowa, and in the surrounding area. She went to Grinnell to complete one year of advanced study in English, but remained to complete the college course. Finally, she accepted a position as "Lady Principal" at Grinnell (Iowa) College, a position she resigned in January of 1880 so that she could marry one of her former Latin teachers, Marcus Eugene Jones.

It is evident from correspondence and from the published account of her life that Anna Jones supported her husband in his life goal of botany. She did sewing for hire, took in individual boarders at first, and finally (1900-1910) established a boarding house to provide funds for Jones to continue his work. Jones had three main goals; to collect the flora of the West, to publish a treatment of *Astragalus*, and to write a flora of the Great



Fig. 7. George Engelmann (ca 1864), specialist in cacti, yucca, agave, and conifers, and correspondent of Parry, Jones, Siler, and others (photo courtesy of Richard W. Pohl).

Basin. All funds provided by Anna and by himself, from mining, consulting, writing, and other projects, were technically supposed to go toward accomplishing of these goals. But Jones was not good at managing money, expending large quantities of capital in photography and unwise investments. Anna lived to see practically all of the first goal and much of the second one completed. Jones had essentially completed the manuscript of *Astragalus* by 1910 (Barneby 1964). Neither Anna nor Marcus would live to see the final goal attained. The Great Basin flora would remain for others.

Broaddus (1952) notes of her mother that "The last year of her life she spent in Claremont, California, keeping house for her youngest child, Mildred, to help her finish college, and earning what she could by doing dress making." Mildred was one of three children; the others were Howard and Mabel (Broaddus 1952).

It is not surprising that Jones was able to accomplish so much, with a wife so dedicated to his care and to his cause.

His trip to St. George required 22 days, but he returned to Salt Lake City in just 16 days. This compares with a drive of about seven hours each way today. The state must have seemed overwhelmingly large to Jones, as it still remains, but his youthful enthusiasm seems to have overshadowed any doubts regarding size or complexity of the flora.

In the ensuing decades he researched a surprising number of places, including many of the mining areas such as Frisco, Silver Reef, Detroit, and Eureka. The state, despite its great size, did not occupy all his time. He traveled to California, Nevada, Montana, Arizona, and finally to Mexico, but his preoccupation with Utah plants is evident from his accomplishments. During his 43 years as resident botanist for Utah this resourceful person built a personal herbarium of about 100,000 unmounted sheets (Munz 1965), among them the best set of Utah plants assembled in all history. Included among that herbarium were 305 Utah types, almost three-tenths of all types collected in the state between 1843 and 1981. Additionally, Jones had named some 165 plant taxa based on Utah types, mainly on his own collections.

If that was not enough, Jones, after becoming disgruntled with other publishers (his life is filled with examples of being disgruntled), began to print his own journal "Contributions to Western Botany," on a hand-operated press, using badly worn type, at his home on the avenues in Salt Lake City. This remarkable pioneer undertook to complete a revision of the genus *Astragalus* for North America. Difficult was the task, at any time, but Jones also faced the problems of transportation, communication, and paucity of library materials; and, though largely dependent on his own collections, his meager locality data is encyclopedic when compared to that recorded (or unrecorded) by some of his contemporaries.

Despite these hurdles, the revision of *Astragalus* was essentially completed by 1910 (Barneby 1964). It was not published until 1923, apparently printed as were his "Contributions" on his own press, with worn type. The text was distributed on "Feb. 15, 1923"



Fig. 8. Albert Osburn Garrett (ca 1930), resident Utah plant taxonomist for more than five decades, teacher, collector, and author of six editions of the *Spring Flora of the Wasatch* (photo courtesy of Lois Arnow).

and the plates on "June 20, 1923" (Jones 1923).

In that same year, Jones's herbarium was purchased by Miss Ellen B. Scripps of La Jolla, California for Pomona College, Claremont, California. That herbarium, the richest of any in Jones's first set of Utah type material, resides today at Rancho Santa Ana Botanical Garden, having been integrated therein in the 1960s.

The species concept of Jones was similar to that of Asa Gray, the leading 19th century botanist with whom Jones corresponded, and to whom he sent early sets of his western collections. A tribute to Jones abilities is indicated in the fact that more than half of the taxa named by him from Utah are still accorded taxonomic standing in contemporary treatments.

He came to look upon western American plant taxonomy as his own, and summarily defended his territory against all comers. His ego was monumental, but was occasionally tempered by flashes of knowledge that he might not be omnipotent. The field season of 1894 (Jones 1895) found him in the field, hired by the U.S. Department of Agriculture as "Special Field Agent." It was to be his best year, with "about 50,000 specimens and 1700 sets, there being 1106 species and varieties in the sets . . ." Or, (Munz 1965) "The total number collected was 4060, and about 35,000 specimens," depending on which of the two accounts of the season one is to believe. Jones (1895) opened the introductory remarks of the report of the 1894 collections, which is the most remarkable single publication in Utah's history of botanical exploration, with the following sentence: "Having had an opportunity to examine the material in the National Herbarium I have been able to correct many errors, and possibly to make a few more." That publication, Jones's "Contributions to Western Botany. No. VII.," reported on some 119 new taxa for Utah, inter alia. That record will stand for all time. The report was published in "Proceedings of the California Academy (Second Series, Vol. 5)," and was one of the last of his contributions published elsewhere (Jones 1895).

There was no one free from Jones's criticism, which resulted from a growing paranoia due in part to his isolation from the

centers of botanical investigation in the country, and in part to the lack of recognition for his contributions, which are staggering. Nevertheless, his criticisms recounted herein were largely unfounded. His contemporaries were, with some exceptions, honorable men doing work in the best tradition open to them. They were, in their own ways, as isolated and as unrecognized as Jones. His published attacks on them yield information and insight into them and him. They are cited here for that reason. Jones thought of himself as benevolent and charitable.

The following examples are presented to give an idea of the time in which Jones lived, and to give a portion of the cast of characters who wandered through Jones's existence as a botanist.

In his "Contributions to Western Botany. No. 12" (1908), Jones took N. L. Britton to task for provisions of the American Association for Advancement of Science attempt at botanical nomenclature. One should know that no standardized code was acceptable to the botanists in the United States at that time, and one would not be forthcoming until publication of the International Code of Botanical Nomenclature in 1935, following Jones's death. Jones wrote of the Brittonian attempt: "Its chief virtue was in a rigid adherence to priority," and further ". . . we find that it isn't priority if it goes back farther than 1753, and it is not priority if it is not in the Latin language." And, still further; "If it is contended that common terms are not Latin we can easily follow the lead of Britton and put a Latin tail on them (a la *Manihota* Britton for Manihot). In that case we would have such very attractive combinations as the following: *Sagebrushum tridentatum*, *Brittonastrum tumbleweedum*, *Greenella slipperyelma*, *Rydbergionella bitterroota*, *Covillea creosotebushia*, *Nelsonella greasewooda*, etc."!

Jones did not agree with acceptance of 1753 as the starting date for botanical nomenclature, and neither did he believe that synonyms should stand in the way of a subsequent use of those same names. Latin as an official language for publication of new species was unacceptable. Jones (1908) wrote: "The purpose of science is to clarify, . . . so that those who follow us can take up work where we left off and ultimately bring out all



the underlying facts and explain causes of natural phenomena." Latin, which was included in his formal education at Grinnell College, and which he had taught in the late 1870s, would not add to clarification for those who would follow him, he thought.

Jones carried his criticism to Dr. B. T. Butler who published a treatment of the western American birches in the Bulletin of the Torrey Botanical Club in August of 1909. After systematically chastising Butler on the merits of his work, which criticisms were merited, if not pleasantly couched, he unfairly attacked the education of Butler and the quality of his teachers (Jones 1910). "The writer [Jones] would be glad to subscribe several cents toward a fund for the education of the professors who are responsible for this kind of work so that they might go to some botanical kindergarten where they could learn that a plant growing in the shade or on a north slope or in a cold lake will differ from another from the same parent which grows in a warmer and drier situation, and that this condition will be reversed when the offspring of these plants occupy reversed conditions; and where they could learn that a poodle dog running around a house is not necessarily two distinct species because they see his tail only on the south side and later on his head only on the north side."

Perhaps, but not likely, Jones would have been less harsh on Dr. Butler, but that student took his Ph.D. degree at Bronx Park and Columbia, always synonymous to Jones with gross misunderstanding of "true" botany. Jones attacked members of the Brittonian school, especially P. A. Rydberg and those associated with him. An enlightening aside on the Brittonian school is found in Jones's (Jones 1913: 27) comments on Gray's Manual, Seventh Edition, in which he states; "One of the most commendable things in the book is the ignoring of the split genera of Britton, Rydberg, and Small. For some years the Brittonians have raised a great hue and cry about the new and original work done by them in splitting up Grayan genera. A recent repetition of this is in the Torrey Bulletin where the new Manual was reviewed through Bronx Park glasses. Anything published by Harvard is like a red flag before a bull to Bronx Park. Whenever Harvard sneezes Bronx Park has a

fit, and it is a standing joke among botanists." Jones (1913) then discusses the work by Rydberg in *Habenaria*; "As though Rydberg had done any original work in the genus." And further, "Rydberg tries to justify this work by saying that some of the changes have already been recognized by European botanists. Now if there is any crazy thing that some European botanist has not done in the near or remote past the writer would like to have it mentioned, and to use that as an excuse for doing some other crazy thing is no argument in its favor." The last sentence is as applicable today as it was when Jones wrote it. Some contemporary American botanists look to Europe as the wellspring of all that is important or believable in 20th-century taxonomy. If the Europeans subscribe to splitting then we should follow. The idea is as absurd today as it was in Jones's time; the Europeans have mainly looked at their flora too long, if we have not looked long enough.

Jones was not without humor in his criticisms. He (1910: 34-42) wrote a rebuttal to a publication by A. A. Heller dealing with nomenclature. Jones wrote: "The publication of the article on nomenclature in my last Contributions seems to have given Mr. Heller (in Muhlenbergia) a bad attack of mental colic, recurrent colic. His capacity to appreciate the motive and scope of my criticisms reminds one of the Englishman who after traveling extensively in this country returned home and said to his admiring friends 'The Americans are a very clever people but they have many uncouth expressions, for example they say 'Where am I at', we would say 'Where his my at.''"

Jones (1910: 35) continued his argument against the principal of priority begun earlier (Jones 1908). After giving other examples of treating names from languages other than Latin, he notes, "Now that he [Heller] has Hellerized all the English names . . . and gotten the Hellerian tail properly adjusted to all, he will find that Greek antedates the English, then can get up another set of names from the Sanscrit, then the Chinese, then he might take up the Egyptian and give still another batch of new names. By the time the botanical public has begun to recover from the last of these afflictions it is likely that the phonograph and the graphophone will be

perfected that they can take the ripple marks made by sound waves on prehistoric mud (now turned to stone) produced by the incoherent babblings of some of the simian ancestors of the Brittonians, and reproduce them so that they will be as lucid as some recent descriptions of plants, and will have far stronger claim to priority of publication than the Brittonian checklist had at the time when it was said to have been published."

Jones was wrong to oppose the principal of priority, and because of his obstinacy, he created synonyms that were unjustified, i.e., the case of *Astragalus angustus* (Jones) Jones, wherein he refused to use the legitimate replacement "*ceramicus*" proposed by Sheldon because earlier names were already occupied. Priority ultimately provides for a stability in nomenclature; without it chaos could result. Jones should have understood the necessity for a consistent nomenclature.

In the same article in which Jones (1910: 35) attacked Heller, he took the opportunity for a broadside against P. A. Rydberg and E. L. Greene. "Greene and Rydberg especially have been addicted to bolstering up fictitious species and genera by reasoning from analogy instead of known facts. Such arguments always get their users into difficulty. I well remember when it was a stock argument among geologists to claim that the climate of the Arctic was Tropical in the early Quaternary because elephants (mastodons) lived there, animals which live only in Tropical climates. Many years afterwards one of these animals was found in a perfect state of preservation imbedded in ice, and it proved to have very long hair and its stomach was full of Arctic plants which it had eaten, showing that it had its home in a frigid climate where that race of animals flourished, and not Tropical as has been dogmatically assumed," Jones wrote.

The mastodon case is cited by Creationists in contemporary literature as demonstrating existence of tropical climates in high latitudes, but the plants taken from frozen stomach contents are said to consist of tropical plants, i.e., buttercups for example. The rattle-headed thinking alluded to by Jones, if not altogether warranted in the men he attacked, is not attributable to botanists alone.

Barneby (1964) has indicated that Jones was wrong in his malicious attacks, especially of Rydberg. There is logic in Rydberg's approach, even if that approach is subject to interpretation. He believed in the binomial system of nomenclature strictly. He (Rydberg 1929) believed that the variation which he observed, and he was a keen observer, should be described. Such an approach called to attention those who were his contemporaries and those who followed him. His work was always limited to those few specimens he had available. That he should see only portions of the entire picture is a fault not his alone; all botanists are troubled with the same problem in varying degree.

But, it was on Greene and Rydberg that Jones showered his continuing invective. He survived both of them, and heaped indignation on them in their later years, and in Greene's case, even following his death.

E. L. Greene died on 10 November 1915. Presumably Jones wrote his scathing obituary of Greene shortly thereafter, but it was



Fig. 9. Anna Elizabeth Richardson Jones (1913), wife of Marcus Eugene Jones, who helped him to collect, and who provided money to support him in his botanical works (photo courtesy of Charles Walker).

not published until a decade and a half later (Jones 1929). The opening paragraph of the paper (Jones 1929: 25) entitled "Greene" is as follows. "There have been several notable deaths in the botanical world since my last contributions. Greene, the pest of systematic botany, has gone and relieved us from his botanical drivel. They say that the good that men do lives after them, but the evil is entered with their bones. I suspect that his grave must have been a big one to hold it all." Subsequently, Jones (1929) continues; "Greene was first, last and all the time a botanical crook, and an unmitigated liar, when it suited him to try to make a point against someone else."

Rydberg survived until July of 1931, and had published his monumental *Flora of the Rocky Mountains* first in 1917. The work was reissued in revised form in 1922 (Rydberg 1917, 1922). Not until much later did Jones (1929: 9) take note of Rydberg's flora in print. The opening paragraph of Jones's review begins: "We are glad that at last Rydberg has put his conception of species and genera in book form. His sporadic publications hitherto have shown botanists that he has no conception of either species or genera. In addition he accommodates us by saying that any plant deserving of a name should have a specific name. What he really means is that if any fool botanist anywhere in the world has applied a name to a plant as variety form or subspecies that name should be raised at once to specific rank, and which he proceeds to do. At the same time he quibbles over priority by position as though it was a matter of any importance. He 'strains at a gnat and swallows a camel.'"

"This book is what I have in the past dubbed bughole botany, species depending on the number of bugholes in the leaves. Rydberg has no conception that there is any such science as ecology, or that environment has any effect on species variation."

Jones (1935, published posthumously) wrote an obituary for Rydberg also, in which he was more a gentleman, but the rancor comes through even then. Jones, it seems, never knew when to let an argument end, even when there was no chance for his opponent to speak. Jones (1935: 141) states: "On July 25, 1931 there occurred the second

tragedy in American botany, the death of Rydberg before his time, the first tragedy having been the death of J. N. Rose. Their disappointment at the treatment accorded them by the botanical public was, however, partly their own fault; for no one has a right to subordinate his own judgment to that of another, as I think they did to Britton's, for the sake of financial support." Later, Jones (1935: 142) continued, "Rydberg was inclined in his later years to consider himself persecuted. I never knew that he had any personal enemies. Nor do I think any one ever got after him for personal reasons. I certainly never did, though once or twice I had some reason to feel that he had not treated me fairly in private correspondence."

Ivar Tidestrom and Aven Nelson were subjects of his invective too, and not without some justification. They were troubled by a lack of material to make definitive taxonomic decisions, and they lacked the experience and understanding that Jones had accumulated in his decades of active field and herbarium studies. Despite the quality of their work, as is apparent in their publications (Tidestrom 1925, Coulter & Nelson 1909), their floras were to stand for decades as the authorities on plant names for much of the Rocky Mountain and intermountain regions. The publications were used by generations of botanists who were never quite satisfied with keys, descriptions (lacking altogether in the work by Tidestrom), or geographical data. The shame in all of Jones's criticism is that he did not complete a work on the flora of the Basin and Range Province of his own. It, too, would have been flawed, as all works are, but with evidence taken over a long lifetime (more than four decades), it would have served well those later generations on whom was afflicted the work of Tidestrom, and the peripheral work of Coulter & Nelson. Jones's opus *magnum laboris*, his revision of *Astragalus* (1923) is flawed, not by the species concept or by the descriptions, but by the rattle-headed polychotomous keys, which are difficult if not impossible to follow, and by his persistence in following his own code of nomenclature. The keys, of which he felt unjustifiably proud (as noted by Barneby 1964), are based on a complex number and letter sequence, which leaves the user wondering



where one goes from any particular place. That his species concept has stood the test of time is indicated again in the work by Barneby (1964), who published a revision of the North American species of *Astragalus* some four decades following the appearance of Jones (1923) work on that incredible genus. Barneby was able to recognize some 60 percent of the taxa named in that genus by Jones, but only 38 percent of those named by Rydberg, and most of those at varietal rank.

Jones had "seen more of the elephant," as it were, than his contemporaries, and with his abilities of observation and his acute awareness of more of it than any other of the period, it is presumed that he would have described both trunk and tail properly and have known their approximate locations. His contemporaries suffered, as do many of our own generation of taxonomists, with a myopia of understanding, and they are caught up in preconceived notions of the importance of plant characteristics.

Rydberg let the characteristics of pods in *Astragalus*, which he likewise monographed (1929), dictate its segregation into more than 30 genera. Carried to its logical conclusion, pod features would ultimately trap its user into absurdities. The use of pod types led Rydberg to place plants of almost identical vegetative appearance into separate genera (i.e., *Astragalus oophorus* Wats. var. *caulescens* (Jones) Jones in the genus *Phaca* and *Astragalus beckwethii* T. & G. in the genus *Phacomene*). Uniformity in plant taxonomy is a trap laid by taxonomists, because the plants vary in accordance with dictates of genotype as that is influenced by habitat. Too, each taxonomic unit is the result of the genetic pathways that produced it, and each is unique both in pathway and in end result. The system must be made to fit the plants, not the other way around. Still, we allow ourselves to fall into the rut; perhaps we demand that we do.

In a presentation to the Fourth International Botanical Congress Rydberg (1929a) outlined his approach to naming of plants. The paper is entitled "Scylla or Charybdis," in recognition of the pitfalls of the descriptive taxonomist. Rydberg (1929a: 1539) notes, "I will admit that phytographic work in the last 35 years has been overdone and I myself

can scarcely plead 'not guilty' to such a charge." A portion of the problem of "over description" was recognized as duplication of effort, where one taxonomist did not know that the entity was already described. "...the more the taxonomist studies a genus or a family, the more forms he recognizes, and the better he knows the family, the finer splitter he becomes. Then he either distinguishes more restricted genera, or recognizes infinitesimal species; or perhaps he recognizes large genera and broad species, but splits these into numerous subordinate categories: subgenera, sections, groups, subspecies, varieties, forms, etc., without end." Thus, Rydberg outlined the directions which he recognized at the ends of the spectrum of taxonomic studies.

His case was overstated, because not all taxonomists are polarized to either one of the two extremes. Rather, they fall remarkably between, because most taxonomists let reality, as they understand it, dictate the course they should follow. It is true that reality is subject to interpretation, and no one can admit to understanding all of what is real. But few ignore the information that is available



Fig. 10. Marcus Eugene Jones (1891), with his field equipment and plant press, south of Salt Lake City (photo Courtesy of Charles Walker).

to them; their interpretations approach reality, more or less.

The thesis of Rydberg's speech (1929) revolves around the publication of the "Phylogenetic Method in Taxonomy" (Hall and Clements 1923). He (Rydberg 1929: 1540) states, "We have seen the endless and infinitesimal splitting into categories of the German school and for twenty years have been thoroughly disgusted with their absurd nomenclature of trinomials, quadrinomials, and polynomials. We believed that any form that is worth describing is worth a name and that a binomial is better than any other. But we might have forgotten that there is a Scylla as well as a Charybdis."

The defence of Rydberg would have been easier except for his "leaping over the edge" in the direction of recognizing all variants at species level. For the feeling expressed in his paper that he had created the species, and had defended and upheld the creations of others, he states, "For years I have admitted

that I am a splitter, but I have prided myself on being consistent, as, for instance, in splitting some genera so as to make them equivalent to other genera in the same family or tribe, but I have just discovered that in order to save already described species of other botanists, even if they have a meager excuse for their existence, I have added some of my own of the same category and made my species concept very inconsistent."

Despite the frailties of his approach, Rydberg was a gentleman. He did not attack Jones in the press, as Jones attacked him. Time will serve to judge them both.

Edward L. Greene (Ewan 1950) was attacked more heartily than any of Jones's other contemporaries, and with more justification. Of the 44 taxa named by him from within Utah only 3 stand in modern taxonomic treatments. He did not collect from within the state, and relied on plants taken by others for the basis of his taxonomic decisions. Perhaps Jones would have been less harsh in criticism of Greene if he had chosen more substantial variants for naming. But Greene was the product of his background, as was Jones, and that background involved training in the clergy (he was a minister). He seems to have believed in the concept of fixity of species, and that any variant was therefore worthy of a name. He also considered himself to be a linguist and would change names involving compounds of Latin and Greek together, without even knowing about the plants themselves. Time has served to judge him, at least as far as his Utah plant names are concerned, as incompetent. Jones judged him more harshly than that.

The career of Marcus Eugene Jones ended suddenly, as noted by his daughter, Mabel Jones Broaddus. In *Contributions to Western Botany*. No. 18. (1935: 132) she wrote: "At this point on June 3, 1934, my father, Prof. Marcus E. Jones met with a fatal accident. He was returning alone from a day's field trip in the San Bernadino Mts. enjoyed in company with the Samuel B. Parish Botanical Society when, at an intersection in San Bernadino, his car was struck in the rear by another car and overturned."

Marcus Jones (Jones and Broaddus 1952) was "... a man of unusual ability, strong

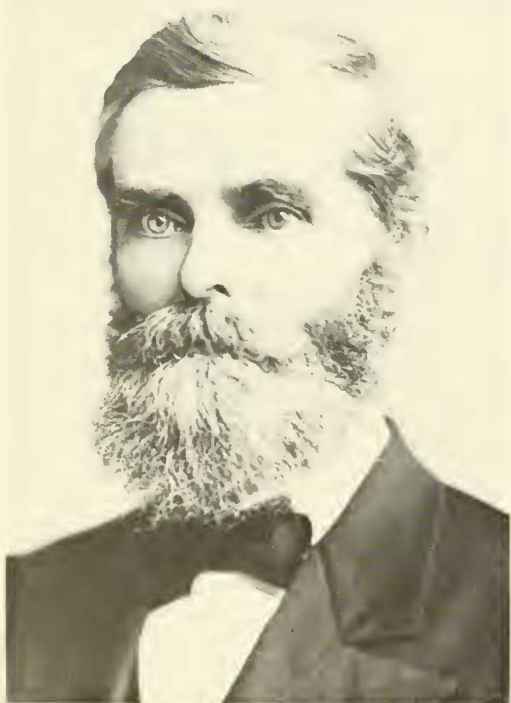


Fig. 11. Charles Christopher Parry (ca 1870), student of John Torrey, correspondent of Asa Gray, Sereno Watson, and George Engelmann, and important collector of Utah types in 1874 (photo courtesy of Richard W. Pohl).

character, and amazing versatility. . . his central interest was always botany.”

Jones's contributions to the understanding of Utah plant taxonomy are overwhelming. He cannot be equaled or surpassed.

### UTAH PLANT TYPES

*Abies subalpina* Engelm. ex Ward Amer. Naturalist 10: 555. 1876. Pinaceae. = *A. lasiocarpa* (Hook.) Nutt. Sanpete (?) Co., Wasatch Pl., above Gunnison, Ward sn, 1875 (US!).

*Abronia argillosa* Welsh & Goodrich Great Basin Naturalist 40: 78. 1980. Nyctaginaceae. Grand Co., 6 mi s Cisco, S. E., & M. Welsh 16689, 1978 (BRY!;NY!;US!;UT!).

*Abronia fallax* Heimerl ex Rydb. Bull. Torrey Bot. Club 29: 684. 1902. Nyctaginaceae. = *A. elliptica* A. Nels. Salt Lake Co., Salt Lake City, Jones 1337, 1879 (US!;NY!;UTC!).

*Abronia fragrans* Nutt. ex Hook. var. *pterocarpa* Jones Contr. W. Bot. 11: 3. 1903. Nyctaginaceae. = *A. elliptica* A. Nels. Tooele Co., Cottonwood, near Johnson Pass, Jones sn, 1900 (?).

*Abronia micrantha* Torr. var. *pedunculata* Jones. Proc. Calif. Acad. II. 5: 716. 1895. Nyctaginaceae. = *Tripterocalyx micrantha* (Torr.) Hook. Washington Co., St. George, Jones 5101, 1894 (POM!;US!;BRY!;RM!).

*Abronia nana* Wats. Proc. Amer. Acad. 14: 294. 1879. Nyctaginaceae. Beaver Co., near Beaver City, Palmer 404 12, 1877 (ISC!).

*Abronia pumila* Rydb. Bull. Torrey Bot. Club 29: 683. 1902. Nyctaginaceae. = *A. elliptica* A. Nels. Emery Co., Emery, Jones 5545q, 1894 (US!;POM!;NY!).

*Abronia salsa* Rydb. Bull. Torrey Bot. Club 29: 684. 1902. Nyctaginaceae. = *A. elliptica* A. Nels. Salt Lake Co., Salt Lake City, Watson 965, 1869 (NY!;US!).

*Abronia turbinata* var. *marginata* Eastw. Proc. Calif. Acad. II, 6: 313. 1896. Nyctaginaceae. = *A. fragrans* Nutt. San Juan Co., Bartons range, Eastwood sn, 1895 (CAS!).

*Acerates decumbens* var. *erecta* Durand Trans. Amer. Phil. Soc. 11: 174. 1860. Asclepiadaceae. = *Asclepias asperula* (Decne.) Woodson Salt Lake Co., Salt Lake City, Carrington sn, 1857 (P).

*Acer kingii* Britt. in Britt. & Shafer N. Amer. Trees 656. 1908. Aceraceae. = *A. negundo* var. *interius* (Britt.) Sarg. Wasatch Mts., Watson 216, 1869 (US!).

*Acer sacharum* Marsh. var. *trilobum* E. Murray Kalmia 10: 2. 1980. Aceraceae. = *A. grandidentatum* Nutt. Sanpete Co., Ephraim Canyon, Tidestrom 1003, 1908 (US!).

*Aconitum divaricatum* Rydb. Fl. Rocky Mts. 314, 1062. 1917. Ranunculaceae. = *A. columbianum* Nutt. in T. & G. Salt Lake Co., City Creek Canyon, Leonard 204182, 1884 (NY!).

*Aconitum glaberrimum* Rydb. Bull. Torrey Bot. Club 29: 151. 1902. Ranunculaceae. = *A. columbianum* Nutt. in T. & G. Washington (?) Co., (S. Utah) Palmer 11, 1877 (NY!).

*Actinella biennis* Gray Proc. Amer. Acad. 13: 373. 1878. Asteraceae. = *Hymenoxys cooperi* (Gray) Cockerell Washington (?) Co., Arizona and Utah, Palmer 260, 1877 (US!;ISC!;BRY!).

*Adiantum rimicola* Slosson Bull. Torrey Bot. Club 41: 308. 1914. Polypodiaceae. = *A. capillus-veneris* var. *modestum* f. *rimicola* (Slosson) Fern. San Juan Co., Armstrong Canyon, Rydberg & Garrett 9423, 1913 (NY!).

*Agave scaphoidea* Greenm. & Roush Ann. Missouri Bot. Gard. 16: 391. 1929. Agavaceae. = *A. utahensis* Engelm. var. *utahensis* Washington Co., St. George, Palmer sn, 1877 (MO?).

*Agave utahensis* Engelm. in Wats. var. *utahensis* Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 497. 1871. Agavaceae. Washington Co., St. George, Palmer s.n. 1870 (US!).

*Agoseris caudata* Greene Leaf. Bot. Obs. & Crit. 2: 124. 1911. Asteraceae. = *A. glauca* (Pursh) Raf. var. *laciniata* (D.C. Eaton) Smiley Sevier Co., Salina Canyon, Jones 5438, 1894 (US!;NY!).

*Agoseris confinis* Greene Leaf. Bot. Obs. & Crit. 2: 124. 1911. Asteraceae. = *A. aurantiaca* (Hook.) Greene Piute Co., near Marysville, Jones 5893z, 1894 (US!).

*Agoseris isomeris* Greene Leaf. Bot. Obs. & Crit. 2: 123. 1911. Asteraceae. = *A. glauca* (Pursh) Raf. Summit Co., Uinta Mts., Goodding 1397, 1902 (US!;RM!;ISC!).

*Agoseris longirostris* Greene Leaf. Bot. Obs. & Crit. 2: 125. 1911. Asteraceae. = *A. aurantiaca* (Hook.) Greene Sevier Co., Fish Lake, Jones 5743N, 1894 (US!;POM!).

*Agoseris taraxacoides* Greene Leaf. Bot. Obs. & Crit. 2: 123. 1911. Asteraceae. = *A. glauca* (Pursh) Raf. Piute Co., near Marysville, Jones 5372, 1894 (US!).

*Aletes tenuifolia* Coult. & Rose Contr. U.S. Natl. Herb. 7: 108. 1900. Apiaceae. = *Musineon lineare* (Rydb.) Mathias Cache Co., Rydberg sn, 1895 (US!;RM!;NY!).

*Allium biceptrum* var. *utahense* Jones Contr. W. Bot. 10: 33. 1902. Liliaceae. = *A. biceptrum* var. *biceptrum* Salt Lake Co., City Creek Canyon, Jones 6647, 1898 (POM!).

*Allium brevistylum* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 350. 1871. Liliaceae. Summit Co., Uinta Mts., Watson 1180, 1869 (US!;NY!).

*Allium cristatum* Wats. Proc. Amer. Acad. 14: 232. 1879. Liliaceae. = *A. nevadense* Wats. Washington Co., St. George, Palmer 454, 1877 (US!;NY!;ISC!).

*Allium passeyi* A. & N. Holmgren Brittonia 26: 309. 1974. Liliaceae. Box Elder Co., Howell Valley, Holmgren et al. 13125, 1960 (NY!;BRY!;US!;UT!;UTC!).

*Allium reticulatum* var. *deserticola* Jones Contr. W. Bot. 10: 30. 1902. Liliaceae. = *A. macropetalum* Rydb. Grand Co., Cisco, Jones sn, 1890 (POM!;US!).

*Allium tribracteatum* Torr. var. *diehlii* Jones Contr. W. Bot. 10: 18. 1902. Liliaceae. = *A. brandegei* Wats. Summit Co., Parleys Park, Jones 6590, 1901 (US!;CAS!;POM!).

*Allocarya cognata* Greene Pittonia 4: 235. 1901. Boraginaceae. = *Plagiobothrys scouleri* (H. & A.) Johnst. Cache Co., Cache Valley, Mulford sn, 1888 (US!;NDG!).

*Allocarya orthocarpa* Greene Pittonia 3: 109. 1896. Boraginaceae. = *Plagiobothrys leptocladus* (Greene) Johnst. Cache Co., Mulford sn, 1898 (US!;NDG!).



- Alsine palmeri* Rydb. Bull. Torrey Bot. Club 39: 315. 1912. Caryophyllaceae. = *Stellaria obtusa* Engelm. Beaver Co., Beaver Valley, Palmer 54, 1877 (NY!).
- Amelanchier utahensis* Koehne Wiss. Bei. Progr. Falk-Realmgym. Berl. 95: 25. 1890. Rosaceae. Washington Co., Belleview, Jones 1716, 1880 (US!;POM!;UTC!).
- Amelanchier utahensis* Koehne var. *cinerea* Goodding Bot. Gaz. 37: 55. 1904. Rosaceae. Washington Co., St. George, Goodding 780, 1902 (RM!).
- Amsinckia Eatonii* Suksd. Werdenda 1: 64. 1931. Boraginaceae. = *A. retrorsa* Suksd. Utah, Eaton 251, 1869 (CAS!).
- Amsinckia utahensis* Suksd. Werdenda 1: 106. 1931. Boraginaceae. = *A. tessellata* Gray Salt Lake Co., Salt Lake City, Vicker sn, 1901 (UC!).
- Amsonia brevifolia* Gray Proc. Amer. Acad. 12: 64. 1876. Apocynaceae. = *A. jonesii* Woodson Washington (?) Co., Palmer 302, 1877 (NY!).
- Amsonia eastwoodiana* Rydb. Bull. Torrey Bot. Club 40: 465. 1913. Apocynaceae. Grand Co., Moab vicinity, Rydberg & Garrett 8468, 1911 (NY!;RM!;US!).
- Amsonia latifolia* Jones Contr. W. Bot. 12: 50. 1908. Apocynaceae. = *A. jonesii* Woodson Sevier Co., Monroe Jones 6446, 1899 (CAS!;US!;RM!;POM!;BRY!;NY!).
- Androstaphium breviflorum* Wats. Amer. Naturalist 7: 303. 1873. Liliaceae. Syn: *Brodiaea paysonii* A. Nels. Kane Co., near Kanab, Thompson 59, 1872 (US!).
- Anemone stylosa* A. Nels. Bot. Gaz. 42: 52. 1906. Ranunculaceae. = *A. multifida* Poir. Sevier Co., Fish Lake, Jones 5763, 1894 (US!;BRY!;RM!;POM!;NY!).
- Angelica dilatata* A. Nels. in Coult. & Rose Contr. U.S. Natl. Herb. 12: 446. 1909. Apiaceae. = *A. wheeleri* Wats. Salt Lake Co., City Creek Canyon, Garrett 2127, 1907 (US!;RM!).
- Angelica leporina* Wats. Proc. Amer. Acad. 12: 252. 1871. Apiaceae. = *A. pinnata* Wats. Wayne Co., Rabbit Valley, Ward 612. 1875 (US!;NY!).
- Angelica pinnata* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 126. 1871. Apiaceae. Syn: *A. leporina* Wats. Summit Co., Uinta Mts. Watson 458, 1869 (US!;NY!).
- Angelica wheeleri* Wats. Amer. Naturalist 7: 301. 1873. Apiaceae. Syn: *A. dilatata* A. Nels. Northern and Central Utah, Wheeler 1872 (US!).
- Anotites jonesii* Greene Leaf. Bot. Obs. & Crit. 1: 102. 1905. Caryophyllaceae. = *Silene menziesii* Hook. Utah Co., American Fork Canyon, Jones 1372, 1880 (US!;RM!;POM!;UTC!).
- Antennaria austromontana* E. Nels. Proc. U.S. Natl. Mus. 23: 703. 1901. Asteraceae. = *A. alpina* var. *media* (Greene) Jeps. Piute Co., Marysvale, Jones 5522, 1894 (US!).
- Antennaria dimorpha* (Nutt.) T. & G. var. *macrocephala* D.C. Eaton Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 186. 1871. Asteraceae. = *A. dimorpha* (Nutt.) T. & G. Salt Lake Co., Salt Lake City, Watson 654, 1869 (US!).
- Antennaria obtusata* Greene Feddes Repert. 5: 241. 1908. Asteraceae. = *A. parvifolia* Nutt. Uintah Co., Uinta Mts., Goodding 1209, 1902 (US!).
- Anticlea vaginata* Rydb. Bull. Torrey Bot. Club 39: 108. 1912. Liliaceae. = *Zigadenus vaginatus* (Rydb.) Macbr. San Juan Co., Natural Bridges, Rydberg & Garrett 9407, 1911 (NY!;RM!;US!;BRY!;UT!).
- Antirrhinum kingii* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 215. 1871. Scrophulariaceae. Tooele Co., Stansbury Island, Watson 767, 1869 (US!).
- Aquilegia caerulea* James var. *calcarea* Jones Proc. Calif. Acad. 11 5: 619. 1895. Ranunculaceae. = *A. scopulorum* var. *calcarea* (Jones) Munz Garfield Co., above Cannonville, Jones 5312a, 1894 (POM!;US!).
- Aquilegia depauperata* Jones Contr. W. Bot. 8: 1. 1898. Ranunculaceae. = *A. flavescens* Wats. Utah Co., Provo Canyon, Jones sn, 1896 (POM!;US!).
- Aquilegia flavescens* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 10. 1871. Ranunculaceae. Syn: *A. depauperata* Jones Salt Lake (?) Co., Wasatch Mts., Watson 35, 1869 (US!;NY!).
- Aquilegia flavescens* Wats. f. *minor* Tidestr. Amer. Midl. Naturalist 1: 171. 1910. Ranunculaceae. Sanpete Co., Wasatch Plateau, Tidestrom sn (?).
- Aquilegia micrantha* Eastw. Proc. Calif. Acad. II, 4: 559. 1895. Ranunculaceae. Syn: *A. pallens* Payson; *A. lithophila* Payson; *A. rubicunda* Tidestr. San Juan Co., near Bluff City, Wetherill sn, 1894 (CAS!;POM!).
- Aquilegia pallens* Payson Bot. Gaz. 60: 375. 1915. Ranunculaceae. = *A. micrantha* Eastw. San Juan Co., LaSal Creek, Payson 443, 1914 (?).
- Aquilegia rubicunda* Tidestr. Amer. Midl. Naturalist 1: 168. 1910. Ranunculaceae. = *A. micrantha* Eastw. Emery Co., near Emery, Tidestrom 1418, 1908 (US!).
- Aquilegia scopulorum* Tidestr. Amer. Midl. Naturalist 1: 167. 1910. Ranunculaceae. Sanpete Co., Wasatch Peak, Tidestrom 1788, 1908 (US!).
- Arabis demissa* Greene var. *russeola* Rollins Rhodora 43: 387. 1941. Brassicaceae. Uintah Co., 18 mi N Vernal, Rollins 1757, 1937 (NY!;US!;CAS!;RM!;BRY!;UTC!).
- Arabis diehlii* Jones Contr. W. Bot. 14: 38. 1912. Brassicaceae. = *A. pendulina* Greene Beaver Co., Mt. Belknap, Jones sn, 1899 (POM!).
- Arabis glabra* (L.) Bernh. var. *furcatipilis* Hopkins Rhodora 39: 109. 1937. Brassicaceae. Cache Co., Logan Canyon, Maguire 3437, 1932 (RM!;UTC!).
- Arabis hirsuta* (L.) Scop. var. *laevis* Tuzon Bericht Frein Verein Pflanzengeog. Syst. Bot. 1919: 43. 1921. Brassicaceae. = *A. hirsuta* (L.) Scop. Utah Co., American Fork Canyon, Jones sn, 1880 (UTC!).
- Arabis lasiocarpa* Rollins Systematic Botany 6: 58. 1981. Brassicaceae. Rich Co., 6 mi w Garden City, R.C. & K.W. Rollins 79307, 1979. (GH).
- Arabis longirostris* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 73. 1871. Brassicaceae. = *Streptanthella longirostris* (Wats.) Rydb. Tooele Co., Stansbury Island, Watson 72, 1869 (NY!).
- Arabis oreophila* Rydb. Bull. Torrey Bot. Club 34: 437. 1907. Brassicaceae. = *A. lyallii* Wats. Salt Lake Co., Rydberg & Carlton 6678, 1905 (NY!).
- Arabis pulchra* Jones var. *duchesnensis* Rollins Systematic Botany 6: 59. 1981. Brassicaceae. Duchesne Co., 3.8 mie Duchesne, R.C. & K.W. Rollins 79113, 1979 (GH).
- Arabis pulchra* Jones var. *pallens* Jones Contr. W. Bot. 14: 42. 1912. Brassicaceae. Grand Co., Westwater, Jones sn, 1891 (US!;NY!).
- Arabis setulosa* Greene Leaf. Bot. Obs. & Crit. 2: 81. 1910. Brassicaceae. = *A. pendulina* Greene Piute Co., Marysvale, Jones 5330, 1894 (US!;CAS!;POM!;NY!).

- Arabis stokesiae* Rydb. Fl. Rocky Mts. 361, 1062. 1917. Brassicaceae. Syn: *A. divaricarpa* A. Nels.; = *A. confinis* Wats. Salt Lake Co., Parleys Canyon, Stokes sn, 1901 (US!;NY!).
- Aragallus majusculus* Greene Proc. Biol. Soc. Wash. 18: 12. 1905. Fabaceae. = *Oxytropis sericea* Nutt. Garfield Co., Henry Mts., Jones 5674, 1894 (US!;POM!;NY!).
- Arctomecon humilis* Cov. Proc. Biol. Soc. Washington 7: 67. 1892. Papaveraceae. Washington Co., St. George, Parry sn, 1874 (US!;NY!;ISC!;NDG!).
- Arenaria fendleri* (Rydb.) Fern. ssp. *brevifolia* Maguire Madroño 6: 23. 1941. Caryophyllaceae. = *A. fendleri* var. *brevifolia* (Maguire) Maguire Grand Co., LaSal Mts., Maguire 17972, 1933 (UTC!).
- Arenaria filiorum* Maguire Bull. Torrey Bot. Club 73: 326. 1946. Caryophyllaceae. Iron Co., beach, Navajo Lake, Maguire 19472, 1940 (NY!;BRY!).
- Arenaria hookeri* Nutt. in T. & G. var. *desertorum* Maguire Amer. Midl. Naturalist 46: 506. 1951. Caryophyllaceae. Duchesne Co., near Duchesne, Ripley & Barneby 8701, 1947 (US!;NY!).
- Arenaria kingii* (Wats.) Jones ssp. *plateauensis* Maguire Bull. Torrey Bot. Club 74: 54. 1947. Caryophyllaceae. = *A. kingii* var. *plateauensis* (Maguire) Reveal Iron Co., Cedar Breaks rim, Maguire 19024, 1940 (US!;NY!;UTC!).
- Arenaria nuttallii* Pax var. *gracilipes* Jones Proc. Calif. Acad. II, 5: 626. 1895. Caryophyllaceae. = *A. nuttallii* Pax Piute Co., Brigham Peak, Jones 5951, 1894 (US!).
- Argemone corymbosa* Greene ssp. *arenicola* G. B. Ownbey Mem. Torrey Bot. Club 21(1): 118. 1958. Papaveraceae. Emery Co., 37.9 mi sw Green River, Ownbey 2146, 1954 (US!;CAS!;RM!;BRY!).
- Arnica arachnoidea* Rydb. N. Amer. Fl. 34: 353. 1927. Asteraceae. = *A. mollis* Hook. Salt Lake Co., Big Cottonwood Canyon, Rydberg & Carlton 6609, 1905 (NY!).
- Arnica caudata* Rydb. Bull. Torrey Bot. Club 37: 463. 1910. Asteraceae. = *A. mollis* Hook. Salt Lake Co., Big Cottonwood Canyon, Garrett 1547, 1894 (RM!;NY!).
- Arnica chamissonis* Less. var. *longinodosa* A. Nels. Bot. Gaz. 30: 199. 1900. Asteraceae. = *A. mollis* Hook. Piute Co., Marysvale, Jones 5883, 1894 (RM!;NY!).
- Arnica jonesii* Rydb. Fl. Rocky Mts. 979. 1917. Asteraceae. = *A. latifolia* Bong. Salt Lake Co., Alta, Jones 119, 1879 (NY!;POM!;UTC!;NDG!).
- Arnica longifolia* D.C. Eaton in Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 186. 1871. Asteraceae. Summit Co., Uinta Mts., Watson 655, 1869 (NY!).
- Arnica ovata* Greene Pittonia 4: 161. 1900. Asteraceae. = *A. mollis* Hook. Salt Lake Co., Alta, Jones 1128, 1879 (POM!;NY!;BRY!;UTC!;NDG!).
- Artemisia norvegica* Fries var. *picetorum* Welsh & Goodrich in Welsh Brittonia 33: 295. 1981. Asteraceae. Duchesne Co., Garfield Basin, Welsh et al 18970, 1979 (BRY!;NY!).
- Asclepias involucrata* Engelm. var. *tomentosa* Eastw. Zoe 4: 120. 1893. Asclepiadaceae. = *A. macrosperma* Eastw. Grand Co., Courthouse Wash. Eastwood sn, 1892 (CAS!;NY!).
- Asclepias labriformis* Jones Proc. Calif. Acad. II, 5: 708. 1895. Asclepiadaceae. Wayne Co., Capitol Wash, Jones 5650, 1894 (POM!;US!;RM!;BRY!;NY!).
- Asclepias leucophylla* Engelm. in Parry Amer. Naturalist 9: 348. 1875. Asclepiadaceae. = *A. erosa* Torr. Washington Co., near St. George, Parry 207, 1874 (M0).
- Asclepias ruthiae* Maguire & Woodson Ann. Missouri Bot. Gard. 28: 245. 1941. Asclepiadaceae. Emery Co., Calf Spring Canyon, Maguire 18310, 1940 (US!;UTC!).
- Asclepias welshii* N. & P. Holmgren Brittonia 31: 110. 1979. Asclepiadaceae. Kane Co., Coral Pink Sand Dunes, N. & P. Holmgren 9009, 1978 (NY!;BRY!;UTC!).
- Astephanus utahensis* Engelm. in Parry Amer. Naturalist 9: 349. 1875. Asclepiadaceae. = *Cynanchum utahense* (Engelm.) Woodson Washington Co., near St. George, Parry 209, 1874 (ISC!).
- Aster canescens* Pursh var. *aristatus* Eastw. Proc. Calif. Acad. II, 6: 296. 1896. Asteraceae. = *Machaeranthera canescens* (Pursh) Gray San Juan Co., Willow Creek, Eastwood 45. 1895 (CAS!).
- Aster glaucodes* Blake ssp. *puleher* Blake Proc. Biol. Soc. Washington 35: 174. 1922. Asteraceae. = *A. glaucodes* Blake var. *puleher* (Blake) Kearney & Peebles Kane Co., Elk Ranch, Jones 6037, 1894 (US!;RM!;POM!).
- Aster glaucus* var. *wasatchensis* Jones Proc. Calif. Acad. II, 5: 694. 1895. Asteraceae. = *A. wasatchensis* (Jones) Blake Piute Co., near Marysvale, Jones 5861, 1894 (US!;RM!;BRY!;POM!;NY!).
- Aster halophilus* Greene Leaf. Bot. Obs. & Crit. 2: 8. 1909. Asteraceae. = *A. chilensis* ssp. *adscendens* (Lindl.) Cronq. Salt Lake Co., Beck's Hot Springs, Garrett 2057, 1906 (UT!;NdDG!).
- Aster kingii* D.C. Eaton in Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 141. 1871. Asteraceae. = *Machaeranthera kingii* (D.C. Eaton) Cronq. & Keck. Salt Lake Co., Cottonwood Canyon, Watson 507, 1869 (US!;NY!).
- Aster leucopsis* Greene Leaf. Bot. Obs. & Crit. 2: 8. 1909. Asteraceae. = *A. chilensis* ssp. *adscendens* (Lindl.) Cronq. Salt Lake Co., Salt Lake City, Garrett 1694, 1905 (UT!;NDG!).
- Aster thermalis* Jones Proc. Calif. Acad. II, 5: 694. 1895. Asteraceae. = *A. pauciflorus* Nutt. Sevier Co., Monroe, Jones 5410, 1894 (POM!;US!).
- Aster venustus* Jones Zoe 2: 247. 1891. Asteraceae. = *Machaeranthera venusta* (Jones) Cronq. & Keck. Grand Co., Cisco, Jones sn, 1890 (POM!;US!;CAS!;RM!;BRY!;NY!).
- Astragalus amphioxys* Gray var. *cymbellus* Jones Rev. Astragalus 215. 1923. Fabaceae. = *A. cymboides* Jones Emery Co., San Rafael Swell, Jones sn, 1914 (POM!).
- Astragalus ampullarius* Wats. Amer. Naturalist 7: 300. 1873. Fabaceae. Kane Co., Kanab, Thompson sn, 1872 (GH;US!).
- Astragalus araneosus* Sheld. Bull. Geol. & Nat. Hist. Surv. Minnesota 9: 1894. Fabaceae. = *A. lentiginosus* Dougl. var. *araneosus* (Sheld.) Barneby Beaver Co., Frisco, Jones 1807, 1880 (US!;RM!;BRY!;POM!;NY!;UT!;UTC!).
- Astragalus argillosus* Jones Zoe 2: 241. 1891. Fabaceae. = *A. flavus* Nutt. var. *argillosus* (Jones) Barneby Emery Co., Greene River, Jones sn, 1890 (POM!;US!;BRY!).
- Astragalus argophyllus* Nutt. var. *cnicensis* Jones Rev. Astragalus 207. 1923. Fabaceae. = *A. argophyllus* var. *martinii* Jones Utah Co., Thistle, Jones sn, 1898 (POM!).

- Astragalus arietinus* Jones Proc. Calif. Acad. II. 5: 653. 1895. Fabaceae. = *A. cibarius* Sheld. Sanpete Co., Fairview, Jones 5544o, 1894 (POM!).
- Astragalus asclepiadoides* Jones Zoe 2: 238. 1891. Fabaceae. Grand Co., Cisco, Jones sn, 1889 (POM!).
- Astragalus beckwithii* T. & G. var. *beckwithii* Rep. U.S. Explor. & Surv. R.R. Pacific 2: 120. 1855. Fabaceae. Tooele Co., west of Lone Rock, Beckwith, 1854 (GH).
- Astragalus beckwithii* T. & G. var. *purpureus* Jones Zoe 3: 288. 1893. Fabaceae. Juab Co., Deep Creek Mts., Jones sn, 1891 (US!;POM!;BRY!;NY!).
- Astragalus castaneiformis* var. *consobrinus* Barneby Amer. Midl. Naturalist 41: 496. 1949. Fabaceae. = *A. consobrinus* (Barneby) Welsh Wayne Co., Bicknell, Ripley & Barneby 8605, 1947 (CAS!;RM!;NY!;UTC!).
- Astragalus chamaeleuce* Gray in Ives var. *panguicensis* Jones Proc. Calif. Acad. II. 5: 671. 1895. Fabaceae. = *A. argophyllus* var. *panguicensis* (Jones) Jones Garfield Co., Panguitch Lake, Jones 6023f, 1894 (POM!).
- Astragalus chloodes* Barneby Leaf. W. Bot. 5: 6. 1947. Fabaceae. Uintah Co., 6 mi se Jensen, Ripley & Barneby 7797, 1946 (CAS!;RM!;NY!;UTC!).
- Astragalus cibarius* Sheld. Bull. Geol. & Nat. Hist. Surv. Minnesota 9: 149. 1894. Fabaceae. Syn: *A. arietinus* Jones Utah Co., Utah Valley, Jones 1679, 1880 (MINN;POM!;US!;NY!).
- Astragalus cicadae* var. *lacoliticus* Jones Proc. Calif. Acad. II. 5: 672. 1895. Fabaceae. = *A. chamaeleuce* Gray Garfield Co., Henry Mts., Jones 5658q, 1894 (POM!).
- Astragalus coltonii* Jones var. *aphyllus* Jones Rev. Astragalus 71. 1923. Fabaceae. Syn: *A. coltonii* var. *coltonii* Sevier Co., near Richfield, Jones sn, 1898 (POM!).
- Astragalus coltonii* Jones var. *coltonii* Zoe 2: 237. 1891. Fabaceae. Syn: *Astragalus coltonii* var. *aphyllus* Jones Carbon Co., Castle Gate, Jones sn, 1889 (POM!;US!;NY!).
- Astragalus coltonii* Jones var. *moabensis* Jones Contr. W. Bot. 8: 11. 1898. Fabaceae. Syn: *Homalobus canoviensis* Rydb. San Juan Co., Monticello, Eastwood 9, 1892 (POM!).
- Astragalus convallarius* Greene var. *finitimus* Barneby Leaf. W. Bot. 7: 192. 1954. Fabaceae. Washington Co., 3 mi s Enterprise, Ripley & Barneby 4967, 1942 (CAS!).
- Astragalus cottamii* Welsh Rhodora 72: 189. 1970. Fabaceae. San Juan Co., e Clay Hills Divide, Welsh 5207, 1966 (BRY!;NY!;ISC!).
- Astragalus cronquistii* Barneby Mem. New York Bot. Gard. 13: 258. 1964. Fabaceae. San Juan Co., w side Comb Wash, Cronquist 9123, 1961 (NY!;UTC!).
- Astragalus cymboides* Jones Proc. Calif. Acad. II. 5: 650. 1895. Fabaceae. Syn: *A. amphoxyxys* var. *cymbellus* Jones Emery Co., Huntington, Jones 5464j, 1894 (POM!;US!;NY!).
- Astragalus desereticus* Barneby Mem. New York Bot. Gard. 13: 635. 1964. Fabaceae. Sanpete Co., Indianola, Tidestrom 2249, 1909 (GH).
- Astragalus desperatus* Jones var. *desperatus* Zoe 2: 243. 1891. Fabaceae. Grand Co., near Cisco, Jones sn, 1890 (US!;RM!;BRY!).
- Astragalus desperatus* Jones var. *petrophilus* Jones Rev. Astragalus 204. 1923. Fabaceae. Emery Co., San Rafael Swell, Jones sn, 1914 (POM!;RM!;BRY!;NY!).
- Astragalus detritalis* Jones Contr. W. Bot. 13: 9. 1910. Fabaceae. Syn: *A. spectabilis* C.L. Porter Duchesne Co., near Theodore, Jones sn, 1908 (POM!;BRY!;NY!).
- Astragalus diehlii* Jones Rev. Astragalus 194. 1923. Fabaceae. = *A. flexuosus* var. *diehlii* (Jones) Barneby Carbon Co., Farnham, Jones sn, 1898 (POM!;RM!;NY!;BRY!;UTC!).
- Astragalus dodgeanus* Jones Zoe 3: 289. 1893. Fabaceae. = *A. wingatanus* Wats. Grand Co., Thompsons Springs, Jones sn, 1891 (POM!;BRY!;NY!).
- Astragalus duchesnensis* Jones Contr. W. Bot. 13: 6. 1910. Fabaceae. Duchesne Co., Theodore to Myton, Jones sn, 1908 (POM!;CAS!;RM!;BRY!;US!;NY!).
- Astragalus ensiformis* Jones var. *gracilior* Barneby Proc. Calif. Acad. IV. 25: 158. 1944. Fabaceae. = *A. ensiformis* Jones Washington Co., s Veyo, Ripley & Barneby 4951, 1942 (CAS!;NY!).
- Astragalus episcopus* Wats. Proc. Amer. Acad. 10: 345. 1875. Fabaceae. Kane (?) Co., Bishop sn, 1872 (GH;US!;NY!).
- Astragalus equisolensis* Neese & Welsh Rhodora 83: 457. 1981. Fabaceae. Uintah Co., s Jensen, Neese & Welsh 7380, 1979 (BRY!;NY!;US!;POM!;UTC!).
- Astragalus eremiticus* Sheld. Bull. Geol. & Nat. Hist. Surv. Minnesota 9: 161. 1894. Fabaceae. Washington Co., Beaver Dam Mountains, Parry 45, 1874 (MINN;US!;ISC!;NY!).
- Astragalus eurekensis* Jones Contr. W. Bot. 8: 12. 1898. Fabaceae. Syn: *Xylophacos medius* Rydb. Juab Co., Eureka, Jones sn, 1891 (POM!;BRY!).
- Astragalus flavus* Nutt. in T. & G. var. *candicans* Gray Proc. Amer. Acad. 12: 54. 1876. Fabaceae. Syn: *A. confertiflorus* Gray Sevier Co., near Richfield, Ward 246, 1875 (GH;NY!).
- Astragalus hamiltonii* C.L. Porter Rhodora 54: 159. 1952. Fabaceae. Uintah Co., 5 mi sw Vernal, Hamilton & Beath sn, 1952 (RM!).
- Astragalus harrisonii* Barneby Mem. New York Bot. Gard. 13: 271. 1964. Fabaceae. Wayne Co., near Fruita, Barneby 13131, 1961 (CAS!;US!;BRY!;NY!;UTC!).
- Astragalus haydenianus* Gray ex Brandegees var. *major* Jones Zoe 2: 240. 1891. Fabaceae. = *A. bisulcatus* var. *major* (Jones) Welsh Kane Co., Johnson, Jones sn, 1890 (POM!;BRY!;NY!).
- Astragalus ibapensis* Jones Zoe 3: 290. 1893. Fabaceae. = *A. diversifolius* Gray Juab Co., Deep Creek Mts., Jones sn, 1891 (POM!).
- Astragalus iselyi* Welsh Great Basin Naturalist 34: 305. 1974. Fabaceae. San Juan Co., Brumley Ridge, Welsh 10970, 1971 (BRY!;UT!;POM!;UTC!;ISC!).
- Astragalus jejunos* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 73. 1871. Fabaceae. Summit (?) Co., Bear River Valley, Watson 279, 1869 (NY!).
- Astragalus junceus* var. *attenuatus* Jones Rev. Astragalus 76. 1923. Fabaceae. = *A. convallarius* Greene Carbon Co., Price, Jones sn, 1898 (POM!;BRY!;NY!).
- Astragalus lentiginosus* Dougl. ex Hook. var. *char-taceus* Jones Proc. Calif. Acad. II. 5: 673. 1895. Fabaceae. = *A. lentiginosus* var. *araneosus* (Sheld.) Barneby Sanpete Co., Ephriam, Jones 5627m, 1894 (POM!).
- Astragalus lentiginosus* Dougl. ex Hook. var. *pohlii* Welsh & Barneby Isleya 2: 1. 1981. Fabaceae. Tooele Co., 4.5 mi N Vernal, Welsh et al. 16743, 1978 (BRY!;NY!;UTC!).



- Astragalus lentiginosus* Dougl. ex Hook. var. *citreus* Barneby Leaflet. W. Bot. 4: 119. 1945. Fabaceae. Washington Co., 5 mi w Leeds, Maguire & Blood 4413, 1933 (UTC!).
- Astragalus lentiginosus* Dougl. ex Hook. var. *wahweapensis* Welsh Great Basin Naturalist 38: 286. 1978. Fabaceae. Kane Co., Four Mile Bench, Welsh 12426, 1974 (BRY!;ISC!).
- Astragalus limnocharis* Barneby Leaflet. W. Bot. 4: 236. 1946. Fabaceae. Kane Co., Navajo Lake, Maguire 19474, 1940 (NY!;RM!;UTC!).
- Astragalus nidularius* Barneby Leaflet. W. Bot. 8: 16. 1956. Fabaceae. San Juan Co., White Canyon, Barneby 12778, 1955 (CAS!;US!;RM!;NY!;UT!;UTC!).
- Astragalus palans* Jones Zoe 4: 37. 1893. Fabaceae. = *A. lentiginosus* var. *palans* (Jones) Jones San Juan Co., Montezuma Canyon, Eastwood sn, 1892 (RM!;NY!).
- Astragalus peabodianus* Jones Zoe 3: 295. 1893. Fabaceae. = *A. pubentissimus* var. *peabodianus* (Jones) Welsh Grand Co., Thompsons Springs, Jones sn, 1891 (POM!).
- Astragalus perianus* Barneby Mem. New York Bot. Gard. 13(2): 973. 1964. Fabaceae. Piute Co. n Bullion Creek, Rydberg & Carlton 7104, 1905 (NY!;RM!;US!).
- Astragalus pictus* var. *angustus* Jones Zoe 4: 37. 1893. Fabaceae. = *A. ceramicus* Sheld. San Juan Co., Montezuma Canyon, Eastwood 7, 1892 (POM!;US!).
- Astragalus pictus* var. *magnus* Jones Rev. Astragalus 109. 1923. Fabaceae. = *A. ceramicus* Sheld. Washington Co., Silver Reef, Jones 5160, 1894 (POM!;RM!).
- Astragalus pinonis* Jones Contr. W. Bot. 8: 14. 1898. Fabaceae. Beaver Co., Frisco, Jones sn, 1880 (POM!).
- Astragalus preussii* Gray var. *latus* Jones Zoe 4: 36. 1893. Fabaceae. = *A. preussii* Gray var. *preussii* Emery Co., Green River, Jones sn, 1891 (NY).
- Astragalus preussii* Gray var. *sulcatus* Jones Zoe 4: 37. 1893. Fabaceae. = *A. eastwoodiae* Jones Southeast Utah, Cane Spring, Eastwood sn, 1892 (CAS!;BRY!;NY!;POM!).
- Astragalus rafaensis* Jones Rev. Astragalus 146. 1923. Fabaceae. Emery Co., Cedar Mt., Jones sn, 1915 (POM!;CAS!;RM!;BRY!;NY!;UTC!).
- Astragalus sabulosus* Jones Zoe 2: 239. 1891. Fabaceae. Grand Co., Cisco, Jones sn, 1890 (POM!;BRY!).
- Astragalus saurinus* Barneby Leaflet. W. Bot. 8: 17. 1956. Fabaceae. Uintah Co., 6 mi N Jensen, Holmgren & Tillett 9527, 1953 (NY!;CAS!;RM!).
- Astragalus serpens* Jones Proc. Calif. Acad. II, 5: 641. 1895. Fabaceae. Wayne Co., Loa Pass, Jones 5639i, 1894 (POM!;US!;NY!).
- Astragalus sesquiflorus* Wats. Proc. Amer. Acad. 10: 345. 1875. Fabaceae. Kane Co., near Kanab?, Bishop sn, 1873 (GH;US!).
- Astragalus sileranus* Jones Zoe 2: 242. 1891. Fabaceae. = *A. subcinereus* Gray Kane Co., Sink Valley, Jones sn, 1890 (POM!;CAS!;US!;BRY!;NY!).
- Astragalus sileranus* Jones var. *caraiacus* Jones Proc. Calif. Acad. II, 5: 642. 1895. Fabaceae. = *A. subcinereus* Gray Kane (?) Co., Elk Ranch, Jones 6036, 1894 (POM!;BRY!).
- Astragalus spectabilis* C.L. Porter Rhodora 54: 160. 1952. Fabaceae. = *A. detritalis* Jones Uintah Co., 5 mi sw Vernal, Porter 5309, 1950 (RM!;CAS!;BRY!;POM!;NY!).
- Astragalus stocksii* Welsh Great Basin Naturalist 34: 307. 1974. Fabaceae. = *A. henrimontanensis* Welsh Garfield Co., Henry Mts., Welsh 11740, 1972 (BRY!;ISC!).
- Astragalus straturensis* Jones Contr. W. Bot. 8: 19. 1898. Fabaceae. Washington Co., Silver Reef, Jones 5175, 1894 (POM!;US!;RM!;NY!;BRY!).
- Astragalus striatiflorus* Jones Proc. Calif. Acad. II, 7: 643. 1895. Fabaceae. Washington Co., Springdale, Jones 6080k, 1894 (POM).
- Astragalus subcinereus* Gray var. *basalticus* Welsh Great Basin Naturalist 38: 302. 1978. Fabaceae. Sevier Co., 10 mi s Fremont Jct., Welsh et al. 6447, 1967 (BRY!;ISC!).
- Astragalus subcinereus* Gray var. *subcinereus* Proc. Amer. Acad. 13: 366. 1878. Fabaceae. Syn: *A. sileranus* Jones; *A. sileranus* var. *caraiacus* Jones Southern Utah, (Northern Arizona ?), Palmer 117 1877 (US!;ISC!;NY!).
- Astragalus tegetarius* Wats. var. *rotundus* Jones Proc. Calif. Acad. II, 5: 650. 1895. Fabaceae. = *A. kentrophyta* var. *implexus* (Canby) Barneby Wayne Co., near Loa, Jones 5649b, 1894 (POM!;UC!).
- Astragalus tetrapterus* Gray Proc. Amer. Acad. 13: 369. 1878. Fabaceae. Washington Co., 25 mi n St. George, Palmer 111, 1877 (NY!;ISC!).
- Astragalus thompsonae* Wats. Proc. Amer. Acad. 10: 344. 1875. Fabaceae. = *A. mollissimus* var. *thompsonae* (Wats.) Barneby Kane Co., Kanab, Thompson sn. 1872 (GH;US!).
- Astragalus ursinus* Gray Proc. Amer. Acad. 13: 367. 1878. Fabaceae. = *A. lentiginosus* var. *ursinus* (Gray) Barneby Iron (?) Co., Bear Valley, Palmer sn, 1877 (GH!;NY!;ISC!).
- Astragalus wardii* Gray Proc. Amer. Acad. 12: 55. 1876. Fabaceae. Garfield (?) Co., Aquarius Pl., Ward 424, 1875 (GH;US!;NY!).
- Astragalus woodruffii* Jones Rev. Astragalus 77. 1923. Fabaceae. Emery Co., San Rafael Swell, Jones sn, 1914 (POM!;US!;CAS!;RM!;BRY!;NY!;UTC!).
- Astragalus zionis* Jones Proc. Calif. Acad. II, 5: 652. 1895. Fabaceae. Washington Co., Springdale, Jones 5261w, 1894 (POM!;US!;RM!;BRY!).
- Atriplex bonnevillensis* C.A. Hanson Stud. Syst. Bot. (BRY) 1: 2. 1962. Chenopodiaceae. Millard Co., Pine Valley playa, Hanson 354, 1960 (BRY!;UTC!).
- Atriplex caput-medusae* Eastw. Proc. Calif. Acad. II, 6: 316. 1896. Chenopodiaceae. = *A. argentea* var. *caput-medusae* (Eastw.) Fosberg San Juan Co., Recapture Creek, Eastwood 116, 1895 (US!;CAS!).
- Atriplex cornuta* Jones Proc. Calif. Acad. II, 5: 718. 1895. Chenopodiaceae. = *A. saccaria* Wats. Emery Co., Green River, Jones 5481, 1894 (POM!;US!).
- Atriplex cuneata* A. Nels. Bot. Gaz. 34: 357. 1902. Chenopodiaceae. Emery Co., Emery, Jones 5443, 1894 (US!;RM!).
- Atriplex cuneata* A. Nels. ssp. *introgressa* C.A. Hanson Stud. Syst. Bot. (BRY) 1: 4. 1962. Chenopodiaceae. Carbon Co., Wellington, Hanson 346, 1961 (BRY!;POM!).
- Atriplex garrettii* Rydb. Bull. Torrey Bot. Club 39: 312. 1912. Chenopodiaceae. Grand Co., Moab vicinity, Rydberg & Garrett 8465, 1911 (NY!;US!;UT!).
- Atriplex graciliflora* Jones Proc. Calif. Acad. II, 5: 717. 1895. Chenopodiaceae. Wayne Co., Blue Valley, Jones 5697, 1894 (POM!;US!;RM!;BRY!).

- Atriplex nuttallii* Wats. var. *utahensis* Jones Contr. W. Bot. 11: 19. 1903. Chenopodiaceae. = *A. tridentata* Kuntze Salt Lake Co., Salt Lake City, Jones 1760, 1879? (UC).
- Atriplex rydbergii* Standl. N. Amer. Fl. 21: 47. 1916. Chenopodiaceae. = *A. argentea* var. *argentea* San Juan (?) Co., s Moab, Rydberg & Garrett 9110, 1911 (US!;NY!).
- Atriplex subdecumbens* Jones Proc. Calif. Acad. II, 5: 716. 1895. Chenopodiaceae. = *A. truncata* (Torr.) Gray Sevier Co., Fish Lake, Jones 5745, 1894 (POM!;US!).
- Atriplex tenuissima* A. Nels. Bot. Gaz. 34: 359. 1902. Chenopodiaceae. = *A. wolfii* Wats. Sanpete Co., Gunnison, Jones 6525, 1900 (US!;RM!;POM!;NY!).
- Atriplex tridentata* Kuntze Rev. Gen. 2: 546. 1891. Chenopodiaceae. Syn: *A. nuttallii* var. *utahensis* Jones Box Elder Co., Corinne, Kuntze 3084, 1874 (NY!).
- Atriplex uelshii* C. A. Hanson Stud. Syst. Bot. (BRY) 1: 1. 1962. Chenopodiaceae. Grand Co., 4 mi s Cisco, Hanson 322, 1961 (BRY!;ISC!).
- Atropis laevis* var. *rigida* Beal Grasses N. Amer. 2: 578. 1896. Poaceae. = *Poa canbyi* (Scribn.) Howell Tooele Co., Lake Point, Jones 1021, 1879(US!).
- Aulospermum minimum* Mathias Ann. Missouri Bot. Gard. 17: 353. 1930. Apiaceae. = *Cymopterus minimus* (Mathias) Mathias Iron Co., Cedar Breaks, Mathias 723, 1929 (MO;CAS!;BRY!).
- Aulospermum rosei* Jones in Coult. & Rose Contr. U.S. Natl. Herb. 7: 179. 1900. Apiaceae. = *Cymopterus rosei* (Jones) Jones Sevier Co., Richfield, Jones 30, 1899 (US!;POM!).
- Bahia desertorum* Jones Zoe 2: 249. 1891. Asteraceae. = *Platyschkuhria integrifolia* var. *deserertorum* (Jones) Ellison Grand Co., Cisco, Jones sn, 1890 (US!;POM!).
- Bahia ourolepis* Blake Proc. Biol. Soc. Washington 35: 175. 1922. Asteraceae. = *Platyschkuhria oblongifolia* (Gray) Rydb. Emery Co., Green River, Jones 5482 #1 1894 (US!;POM!).
- Balsamorhiza hispidula* Sharp Ann. Missouri Bot. Gard. 22: 137. 1935. Asteraceae. = *B. hookeri* var. *hispidula* (Sharp) Cronq. Tooele Co., Lake Point, Jones 1727, 1880 (UT!;UTC!).
- Batidophaca sabinarum* Rydb. N. Amer. Fl. 24: 320. 1929. Fabaceae. = *Astragalus argophyllus* var. *panguicensis* (Jones) Jones Iron Co., Cedar Canyon, Garrett 2660, 1920 (NY!).
- Betula utahensis* Britt. Bull. Torrey Bot. Club 31: 165. 1904. Betulaceae. = *B. occidentalis* x *B. papyrifera* Salt Lake Co., City Creek Canyon, Stokes sn, 1900 (NY!).
- Bigelovia douglasii* var. *spathulata* Jones Proc. Calif. Acad. II, 5: 690. 1895. Asteraceae. = *Chrysothamnus viscidiflorus* var. *pumilus* (Nutt.) Jeps. Sevier Co., Fish Lake, Jones 5758m, 1894 (POM;US!).
- Bigelovia glareosa* Jones Zoe 2: 247. 1891. Asteraceae. = *C. nauseosus* (Pallas) Britt. var. *glareosa* (Jones) Welsh Piute Co., Marysvale, Jones sn, 1890 (POM).
- Bigelovia howardii* var. *attenuata* Jones Proc. Calif. Acad. II, 5: 691. 1895. Asteraceae. = *Chrysothamnus parryi* var. *attenuatus* (Jones) Kittell Piute Co., Marysvale, Jones 5912, 1894 (US!;RM!;NY!).
- Bigelovia leiosperma* Gray Syn. Fl. 1(2): 129. 1884. Asteraceae. = *Chrysothamnus nauseosus* var. *leiosperma* (Gray) Hall Washington Co., St. George, Palmer sn, 1875 (NY!;BRY!).
- Bigelovia leiosperma* Gray var. *abbreviata* Jones Proc. Calif. Acad. II, 5: 693. 1895. Asteraceae. = *Chrysothamnus nauseosus* (Pallas) Britt. Sevier Co., Clear Creek Canyon, Jones 6105, 1894 (POM!;US!;NY!).
- Bigelovia menziesii* var. *scopulorum* Jones Proc. Calif. Acad. II, 5: 692. 1895. Asteraceae. = *Haplopappus scopulorum* (Jones) Blake Iron Co., near Cedar City, Jones 5204v, 1894 (POM!;US!).
- Bigelovia turbinata* Jones Proc. Calif. Acad. II, 5: 691. 1895. Asteraceae. = *Chrysothamnus nauseosus* var. *turbinatus* (Jones) Blake Garfield (?) Co., Canaan Ranch, Jones 6066c, 1894 (POM!;US!).
- Brickellia atractyloides* Gray Proc. Amer. Acad. 8: 290. 1870. Asteraceae. Utah?, Colorado River, Palmer sn, 1870 (US!).
- Brickellia linifolia* D.C. Eaton Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 137. 1871. Asteraceae. = *B. oblongifolia* Wats. var. *linifolia* (D.C. Eaton) Robins. Utah Co., Jordan Valley, American Fork, Watson 493, 1869 (US!;CAS!).
- Brickellia watsonii* Robins. Mem. Gray Herb. 1: 42. 1917. Asteraceae. = *B. microphylla* var. *watsonii* (Robins.) Welsh Utah Co., American Fork Canyon, Watson 494, 1869 (US!;NY!).
- Buddleja utahensis* Cov. Proc. Biol. Soc. Washington 7: 69. 1892. Loganiaceae. Washington Co., St. George, Palmer 400, 1877 (US!;NY!;BRY!;ISC!).
- Caesalpinia repens* Eastw. Zoe 4: 116. 1893. Fabaceae. = *Hoffmanseggia repens* (Eastw.) Cockerell Grand Co., Courthouse Wash, Eastwood sn, 1892 (CAS!;US!).
- Calamagrostis scopulorum* Jones Proc. Calif. Acad. II, 5: 722. 1895. Poaceae. Syn: *C. scopulorum* var. *lucidulum* Kearney Washington Co., Springdale, Jones 6075, 1894 (POM!;NY!).
- Calamagrostis scopulorum* Jones var. *lucidula* Kearney USDA Agrostol. Bull. 11: 33. 1898. Poaceae. = *C. scopulorum* Jones Salt Lake Co., Alta, Jones 1145, 1879 (POM!;NY!;BRY!;UTC!).
- Calochortus aureus* Wats. Amer. Naturalist 7: 303. 1873. Liliaceae. Syn: *C. nuttallii* var. *aureus* (Wats.) Ownbey Kane (?) Co., "S. Utah" Thompson, 1872 (US!).
- Calochortus flexuosus* Wats. Amer. Naturalist 7: 303. 1873. Liliaceae. Kane (?) Co., "S. Utah or N. Arizona", Thompson sn, 1872 (GH).
- Camassia quamash* (Pursh) Greene ssp. *utahensis* Gould Amer. Midl. Naturalist 28: 740. 1942. Liliaceae. = *C. quamash* (Pursh) Greene Cache Co., Blacksmith Canyon, Maguire & Maguire 3265, 1932 (?).
- Camissonia gouldii* Raven Contr. U.S. Natl. Herb. 37: 368. 1969. Onagraceae. Washington Co., N of St. George, Gould 1423, 1941 (US!;CAS!).
- Capnodes brachycarpum* Rydb. Bull. Torrey Bot. Club 34: 426. 1907. Fumariaceae. = *Corydalis caseana* ssp. *brachycarpa* (Rydb.) M. Ownbey Salt Lake Co., Alta, Jones 1197, 1879 (NY!;US!;RM!;POM!;BRY!;UTC!).
- Cardamine cordifolia* Gray var. *pubescens* Gray ex Schulz Engl. Bot. Jahrb. 32: 439. 1903. Brassicaceae. = *C. cordifolia* Gray Garfield (?) Co., Thousand Lake Mtn., Ward 396, 1875 (US!).
- Cardamine palustris* var. *jonesii* Kuntze Rev. Gen. 1: 125. 1891. Brassicaceae. = *Rorippa curvipes* var. *curvipes* Salt Lake Co., City Creek Canyon, Jones 1352, 1879 (POM!;NY!).

- Cardamine uintahensis* F.J. Hermann Rhodora 36: 410. 1934. Brassicaceae. = *C. cordifolia* Gray Summit Co., Mt. Elizabeth Ridge, Hermann 5894, 1933 (GH).
- Carduus lacerus* Rydb. Bull. Torrey Bot. Club 37: 543. 1910. Asteraceae. = *Cirsium scariosum* Nutt. Wasatch Co., near Midway, Carlton & Garrett 6732, 1905 (RM!;NY!).
- Carduus olivescens* Rydb. Bull. Torrey Bot. Club 37: 544. 1910. Asteraceae. = *C. scariosum* Nutt. Garfield Co., Aquarius Plateau, Rydberg & Carlton 7450, 1905 (NY!).
- Carex campylocarpa* T.H. Holm ssp. *affinis* Maguire & Holmgren Leaf. W. Bot. 4: 262. 1946. Cyperaceae. = *C. scopulorum* T.H. Holm Juab Co., Indian Farm Creek, Maguire & Holmgren 21947, 1943 (NY!;US!;CAS!;UTC!).
- Carex canescens* L. var. *dubia* Bailey Bot. Gaz. 9: 119. 1884. Cyperaceae. = *C. canescens* L. Summit (?) Co., Bear River Canyon, Watson 1231A, 1869 (NY!).
- Carex epapillosa* Mack. in Rydb. Fl. Rocky Mts. 138. 1060. 1917. Cyperaceae. = *C. atrata* L. Piute Co., Marysvale, Jones 5345, 1894 (NY!;US!;POM!;BRY!).
- Carex interimus* Maguire Brittonia 5: 200. 1944. Cyperaceae. = *C. aquatilis* Wahl. Cache Co., Tony Grove Lake, Maguire 16098, 1938 (NY!;CAS!;US!;UTC!).
- Carex pelocarpa* F. Hermann Rhodora 39: 492. 1937. Cyperaceae. = *C. nova* Bailey Summit Co., Lamotte Peak, Hermann 5983, 1933 (NY!;CAS!).
- Carex rachillis* Maguire Brittonia 5: 199. 1944. Cyperaceae. = *C. subnigricans* Stacey Summit Co., Gilbert Peak, Maguire et al, 14668, 1936 (NY!;US!;CAS!;UTC!).
- Carex vernacula* Bailey var. *hobsonii* Maguire Brittonia 5: 199. 1944. Cyperaceae. = *C. neurophora* Mack. Cache Co., Bear River Range, Maguire et al 14013, 1936 (NY!;CAS!;US!;UTC!).
- Carum garrettii* A. Nels. in Coult. & Rose Contr. U.S. Natl. Herb. 12: 443. 1909. Apiaceae. = *Perideridia gairdneri* (H. & A.) Mathias Salt Lake (?) Co., Wasatch Mts., Garrett 2053, 1906 (US!;NY!).
- Castilleja aquariensis* N. Holmgren Bull. Torrey Bot. Club 100: 87. 1973. Scrophulariaceae. Garfield Co., Aquarius Plateau, N. & P. Holmgren 4726, 1970 (NY!;US!;BRY!;UTC!).
- Castilleja arcuata* Rydb. Bull. Torrey Bot. Club 34: 35. 1907. Scrophulariaceae. = *C. linariifolia* Benth. Sevier Co., Fish Lake, Rydberg & Carlton 7508, 1905 (NY!;RM!;US!).
- Castilleja flava* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 230. 1871. Scrophulariaceae. Summit (?) Co., Upper Bear River Valley, Watson 813, 1869 (US!;NY!).
- Castilleja leonardii* Rydb. Bull. Torrey Bot. Club 34: 36. 1907. Scrophulariaceae. Utah Co., American Fork Canyon, Leonard 151, 1885 (NY!).
- Castilleja parvula* Rydb. Bull. Torrey Bot. Club 34: 40. 1907. Scrophulariaceae. Piute Co., Bullion Creek, Rydberg & Carlton 7158, 1905 (NY!;US!).
- Castilleja revealii* N. Holmgren Bull. Torrey Bot. Club 100: 87. 1973. Scrophulariaceae. Garfield Co., Bryce Canyon, Holmgren & Reveal 2017, 1965 (NY!;US!;BRY!;UT!;UTC!).
- Castilleja variabilis* Rydb. Bull. Torrey Bot. Club 34: 37. 1907. Scrophulariaceae. = *C. miniata* Dougl. Salt Lake Co., Big Cottonwood Canyon, Rydberg 6773, 1905 (NY!;RM!).
- Castilleja viscida* Rydb. Bull. Torrey Bot. Club 34: 32. 1907. Scrophulariaceae. Syn: *C. applegatei* var. *viscida* (Rydb.) Ownbey Salt Lake Co., Big Cottonwood Canyon, Rydberg & Carlton 6593, 1905 (NY!).
- Castilleja zionis* Eastw. Leaf. W. Bot. 3: 91. 1941. Scrophulariaceae. Washington Co., Clear Creek, Eastwood & Howell 9227, 1941 (CAS!).
- Caulanthus crassicaulis* (Torr.) Wats. var. *glaber* Jones Zoe 4: 266. 1893. Brassicaceae. Kane Co., Sink Valley, Jones sn, 1890 (POM!).
- Caulanthus crassicaulis* (Torr.) Wats. var. *major* Jones Proc. Calif. Acad. II, 5: 623. 1895. Brassicaceae. Garfield Co., Henry Mts., Jones 5685, 1894 (POM!;US!;BRY!;NY!).
- Caulanthus divaricatus* Rollins Contr. Gray Herb. II, 201: 8. 1971. Brassicaceae. = *Thelypodiopsis divaricata* (Rollins) Welsh & Reveal San Juan Co., 10 mi E of Hite, Cronquist 9033, 1961 (GH;NY!).
- Caulanthus hastatus* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 28. 1871. Brassicaceae. = *Chlorocrambe hastatus* (Wats.) Rydb. Salt Lake (?) Co., Wasatch Mts., Watson 114, 1869 (US!;NY!).
- Ceanothus fendleri* Gray var. *viridis* Jones Proc. Calif. Acad. II, 5: 629. 1895. Rhamnaceae. = *C. fendleri* Gray Kane (?) Co., Elk Ranch, Jones 6032n. 1894 (POM!).
- Ceanothus martinii* Jones Contr. W. Bot. 8: 41. 1898. Rhamnaceae. Syn: *C. utahensis* Eastw. Sanpete Co., Manti Canyon, Jones sn, 1895 (POM!;RM!;BRY!;NY!;UTC!).
- Ceanothus utahensis* Eastw. Proc. Calif. Acad. IV. 16: 363. 1927. Rhamnaceae. = *C. martinii* Jones Wasatch Co., Soldier Summit, Eastwood 7689, 1918 (CAS!).
- Celtis villosula* Rydb. Fl. Rocky Mts. ed 2. 1116. 1922. Ulmaceae. = *C. reticulata* Torr. Utah, without definite locality, Jones sn, 1894 (NY!).
- Cerastium variable* Goodding Bot. Gaz. 37: 54. 1904. Caryophyllaceae. = *C. beeringianum* C. & S. Uintah Co., Dyer Mine, Goodding 1246, 1902 (US!;RM!;BRY!;NY!;UT!;ISC!).
- Cercis orbiculata* Greene Feddes Repert. 11: 111. 1912. Fabaceae. = *C. occidentalis* var. *orbiculata* (Greene) Tidestr. Washington Co., Diamond Valley, Goodding 899, 1902 (US!;NY!).
- Cercocarpus flabellifolius* Rydb. N. Amer. Fl. 22: 422. 1913. Rosaceae. = *C. montanus* Raf. Sevier Co., near Glenwood, Ward 122, 1875 (US!;NY!).
- Cercocarpus intricatus* Wats. Proc. Amer. Acad. 10: 346. 1875. Rosaceae. Syn: *C. intricatus* var. *villosus* Schneid. Utah Co., American Fork Canyon, Watson 314, 1869 (US!;NY!).
- Cercocarpus intricatus* Wats. var. *villosus* Schneid. Mitt. Deutsch. Dendr. Ges. 14: 129. 1905. Rosaceae. = *C. intricatus* Wats. Tooele (?) Co., Deep Creek, Jones sn, 1891 (US!).
- Cercocarpus ledifolius* Nutt. var. *intercedens* Schneid. f. *hirsutus* Schneid. Mitt. Deutsch. Dendrol. Ges. 14: 129. 1905. Rosaceae. = *C. ledifolius* Nutt. Weber Co., Ogdon Canyon, Pammel & Blackwood 3726, 1902 (ISC!;BRY!).
- Cercocarpus ledifolius* Nutt. var. *intercedens* f. *subglaber* Schneid. Mitt. Deutsch. Dendr. Ges. 14: 128. 1905. Rosaceae. = *C. ledifolius* Nutt. Utah Co., Slate Canyon, Jones 5613b, 1894 (MO;NY!;US!;RM!;BRY!;POM!).



- Cercocarpus parvifolius* Woot. var. *minimus* Schneid. Ill. Handb. Laubholz. 1: 532. 1905. Rosaceae. = *C. montanus* Raf.? Utah?.
- Chaenactis brachiata* Greene Leaf. Bot. Obs. & Crit. 2: 224. 1912. Asteraceae. = *C. douglasii* (Hook.) H. & A. Washington Co., Springdale, Jones 5261q, 1894 (US!;POM!).
- Chaenactis brachiata* Greene var. *stansburiana* Stockwell Contr. Dudley Herb. 3: 111. 1940. Asteraceae. = *C. douglasii* (Hook.) H. & A. Tooele Co., Stansbury Island, Stansbury sn, 1850 (US;NY!).
- Chaenactis douglasii* (Hook.) H. & A. var. *alpina* Gray Syn. Fl. N. Amer. 1(2): 341. 1884. = *C. alpina* (Gray) Jones Salt Lake Co., Alta, Jones 1232, 1879 (NY!;UTC!).
- Cheirimia brachycarpa* Rydb. Bull. Torrey Bot. Club 39: 325. 1912. Brassicaceae. = *Erysimum asperum* Nutt. San Juan Co., Abajo Mts., Rydberg & Garrett 9713, 1911 (NY!;US!;UT!).
- Chrysopsis caespitosa* Jones, not Nutt. Proc. Calif. Acad. II, 5: 694. 1895. Asteraceae. = *Heterotheca jonesii* (Blake) Welsh & Atwood Washington Co., Springdale, Jones 5249u, 1894 (POM!;US!).
- Chrysopsis villosa* Nutt. var. *cinerascens* Blake Proc. Biol. Soc. Washington 35: 173. 1922. Asteraceae. = *Heterotheca villosa* (Nutt.) Shinners Beaver Co., Beaver Canyon, Tidestrom 2873, 1901 (US!).
- Chrysopsis villosa* Nutt. var. *scabra* Eastw. Proc. Calif. Acad. II, 6: 294. 1896. Asteraceae. = *Heterotheca villosa* (Nutt.) Shinners San Juan Co., Willow Creek, Eastwood 38, 1895 (CAS!).
- Chrysothamnus marianus* Rydb. Bull. Torrey Bot. Club 37: 131. 1910. Asteraceae. = *C. viscidiflorus* var. *puberulus* (D.C. Eaton) Jeps. Piute Co., near Marysvale, Rydberg & Carlton 6993, 1905 (US;RM!;NY!).
- Chrysothamnus nauseosus* (Pallas) Britt. ssp. *iridis* L.C. Anderson Great Basin Naturalist 41: 311. 1981. Asteraceae. Sevier Co., Rainbow Hills, Welsh 19258, 1979 (BRY!;FSU!).
- Chrysothamnus nauseosus* (Pallas) Britt. var. *psilocarpus* Blake J. Washington Acad. Sci. 27: 376. 1937. Asteraceae. Syn: *C. nauseosus* ssp. *psilocarpus* (Blake) L.C. Anderson Emery Co., Huntington Canyon, Garrett 7021, 1935 (US).
- Chrysothamnus oliganthus* A. Nels. Univ. Wyoming Publ. Bot. 1: 65. 1924. Asteraceae. = *C. nauseosus* var. *leiospermus* (Gray) Hall Washington Co., Zion National Park, Nelson 9975, 1922 (RM!).
- Chrysothamnus salicifolius* Rydb. Bull. Torrey Bot. Club 37: 130. 1910. Asteraceae. = *C. nauseosus* (Pallas) Britt. var. *salicifolius* (Rydb.) Hall Wasatch Co., Strawberry Valley, Leonard 288, 1883 (NY!;BRY!).
- Chrysothamnus zionis* A. Nels. Univ. Wyoming Publ. Bot. 1: 66. 1924. Asteraceae. = *C. nauseosus* var. *gnaphaloides* (Greene) Hall Washington Co., 20 mi N St. George, Nelson 9980, 1922 (RM!).
- Cirsium barnebyi* Welsh & Neese in Welsh Brittonia 33: 296. 1981. Asteraceae. Uintah Co., 1.5 mi e Ignacio, Welsh 19606, 1980 (BRY!;NY!;US!;MINN!).
- Cirsium eriocephalum* var. *leiocephalum* D.C. Eaton Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 196. 1871. Asteraceae. = *C. catonii* Robins. var. *catonii* Summit? Co., Uinta Mts., Watson 691, 1869 (US!;NY!).
- Cirsium lactucinum* Rydb. Fl. Rocky Mts. 1010, 1068. 1917. Asteraceae. = *C. rydbergii* Petrak San Juan Co., Bluff, Rydberg & Garrett 10001, 1911 (NY!;US!;UT!).
- Cirsium pulchellum* (Greene) Woot. & Standl. var. *glabrescens* Petrak Beih. Bot. Centr. 35(2): 511. 1917. Asteraceae. = *C. bipinnatum* (Eastw.) Petrak San Juan Co., Elk Mts., Rydberg & Garrett 9335, 1911 (US!).
- Cirsium rydbergii* Petrak Beih. Bot. Centralbl. 35(2): 315. 1917. Asteraceae. Syn: *C. lactucinum* Rydb. San Juan Co., Bluff, Rydberg & Garrett 10001, 1911 (US!;UT!;NY!).
- Cirsium undulatum* (Nutt.) Spreng. var. *albescens* D.C. Eaton Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 194. 1871. Asteraceae. = *C. undulatum* (Nutt.) Spreng. Tooele Co., Stansbury Island, Watson 687, 1869 (US!).
- Cirsium utahense* Petrak Beih. Bot. Centr. 35(2): 470. 1917. Asteraceae. Washington Co., Silver Reef, Jones 5163q, 1894 (POM!;US!).
- Clematis alpina* ssp. *occidentalis* var. *repens* Kuntze Verh. Bot. Ver. Brandenb. 26: 161. 1885. Ranunculaceae. = *C. columbiana* (Nutt.) T. & G. Utah Co., American Fork, Jones 1887, 1880 (NY!;POM!).
- Clematis douglassii* ssp. *jonesii* Kuntze Verh. Bot. Ver. Brandenb. 25: 180. 1886. Ranunculaceae. = *C. hirsutissima* Pursh Utah Co., American Fork Canyon, Jones 1351, 1880 (US!;POM!;NY!).
- Clematis pseudotrigena* ssp. *wenderothoides* Kuntze Verh. Bot. Ver. Brandenb. 26: 160. 1885. Ranunculaceae. = *C. columbiana* var. *columbiana* Kane Co., Kanab, Siler sn, 1873 (K).
- Cleome integrifolia* var. *angusta* Jones Proc. Calif. Acad. II, 5: 625. 1895. Capparidaceae. = *C. serrulata* var. *angusta* (Jones) Tidestr. Piute Co., Marysvale, Jones 6057, 1894 (US!).
- Cleomella cornuta* Rydb. Bull. Torrey Bot. Club 30: 249. 1903. Capparidaceae. = *C. palmeriana* Jones Wayne Co., Caineville, Jones 5656, 1894 (US!;BRY!;RM!;NY!).
- Cleomella nana* Eastw. Bull. Torrey Bot. Club 30: 490. 1903. Capparidaceae. = *C. palmeriana* Jones Grand Co., S of Thompsons Spr., Eastwood sn, 1892 (CAS!;RM!).
- Cleomella palmeriana* Jones Zoe 2: 236. 1891. Capparidaceae. Emery Co., Green River, Jones sn, 1890 (POM!;US!).
- Cnicus calcareus* Jones Proc. Calif. Acad. II, 5: 704. 1895. Asteraceae. = *Cirsium calcareum* (Jones) Woot. & Standl. Garfield Co., Bromide Pass, Jones 5695bh, 1894 (POM!;BRY!;US!;NY!).
- Cnicus clavatus* Jones Proc. Calif. Acad. II, 5: 704. 1895. Asteraceae. = *Cirsium clavatum* (Jones) Petrak Sevier Co., Fish Lake, Jones 5715, 1894 (POM!;BRY!;US!;NY!).
- Cnicus nidulus* Jones Proc. Calif. Acad. II, 5: 705. 1895. Asteraceae. = *Cirsium nidulum* (Jones) Petrak Garfield Co., Paria, Jones 5290a, 1894 (POM!;US!;NY!).
- Cnicus rothrockii* var. *diffusus* Eastw. Proc. Calif. Acad. II, 6: 303. 1896. Asteraceae. = *C. rothrockii* (Gray) Petrak San Juan Co., Willow Creek, Eastwood 65, 1895 (US!;CAS!).
- Cogswellia cottamii* Jones Contr. W. Bot. 16: 36. 1930. Apiaceae. = *Lomatium parryi* (Wats.) Macbr. Washington Co., Beaverdam Mts., Cottam et al. 4098, 1929 (BRY!;UT!).

- Cogswellia millefolia* var. *depauperata* Jones Contr. W. Bot. 12: 38. 1908. Apiaceae. = *Lomatium grayi* Coult. & Rose Tooele Co., Dugway, Jones sn, 1891 (US!;POM!;NY!).
- Cogswellia minima* Mathias Ann. Missouri Bot. Gard. 19: 497. 1932. Apiaceae. = *Lomatium minimum* (Mathias) Mathias Garfield Co., Bryce Canyon, Mathias 670, 1929 (MO;CAS!;NY!).
- Colosanthus garretti* A. Nels. Proc. Biol. Soc. Washington 20: 38. 1907. Asteraceae. = *Brickellia grandiflora* (Hook.) Nutt. Salt Lake Co., City Creek Canyon, Garrett 1061, 1904 (RM!;UT!).
- Collomia tenella* Gray Proc. Amer. Acad. 8: 259. 1870. Polemoniaceae. Summit Co., Parleys Park, Watson 900, 1869 (NY!).
- Coloptera jonesii* Coult. & Rose Rev. N. Amer. Umbell. 49: 1888. Apiaceae. = *Cymopterus newberryi* (Wats.) Jones Beaver Co., Milford, Jones 1792, 1880 (POM!;UT!).
- Comandra linearis* Rydb. Fl. Rocky Mts. 818. 1066. 1917. Santalaceae. = *C. umbellata* var. *pallida* (DC.) Jones Emery Co., Green River, Tracy 716, 1887 (NY!).
- Cordylanthus parryi* Wats. in Parry Amer. Naturalist 9: 346. 1875. Scrophulariaceae. = *C. maritimus* ssp. *canescens* (Gray) Chuang & Heckard Washington Co., Parry 155, 1874 (US!;NY!;ISC!).
- Corydalis engelmannii* var. *exaltata* Fedde Feddes Repert. 11: 497. 1913. Fumariaceae. = *C. aurea* Willd. Grand (?) Co., La Sal Mts., Purpus 6550, 1897 (US!).
- Coryphantha marstonii* Clover Bull. Torrey Bot. Club 65: 412. 1938. Cactaceae. = *C. missouriensis* var. *marstonii* (Clover) L. Benson Garfield Co., Hells Backbone, Clover 1909, 1937 (?) (MICH).
- Cowania stansburiana* Torr. in Stansb. Explor. Great Salt Lake 386. 1852. Rosaceae. = *C. mexicana* D. Don Davis (?) Co., Great Salt Lake, Stansbury sn, 1850 (NY!).
- Crassipes annuus* Swallen Amer. J. Bot. 18: 685. 1931. Poaceae. = *Sclerochloa dura* (L.) Beauv. Davis (?) Co., between Salt Lake City & Ogden, Fallas sn, 1928 (US!).
- Crepis aculeolata* Greene Leaf. Bot. Obs. & Crit. 2: 86. 1910. Asteraceae. = *C. runcinata* var. *runcinata* Utah, Ward 606, 1875 (US!).
- Crepis occidentalis* Nutt. var. *costatus* Gray Geol. Surv. Calif. Bot. 1: 435. 1880. Asteraceae. = *C. occidentalis* Nutt. Tooele Co., Stansbury Island, Watson 715, 1869 (US!).
- Cressa erecta* Rydb. Bull. Torrey Bot. Club 40: 466. 1913. Convolvulaceae. = *C. truxillensis* H.B.K. Salt Lake Co., Becks Hot Springs, Garrett 870f, 1905 (NY!).
- Croton longipes* Jones Proc. Calif. Acad. II, 5: 721. 1895. Euphorbiaceae. Washington Co., 2 mi e Leeds, Jones 5213, 1894 (POM!;US!;CAS!;RM!;NY!).
- Cryptantha barnebyi* Johnst. J. Arnold Arb. 29: 240. 1948. Boraginaceae. Uintah Co., 30 mi s Ouray, Ripley & Barneby 8748, 1947 (GH;NY!).
- Cryptantha compacta* Higgins Great Basin Naturalist 28: 196. 1968. Boraginaceae. Millard Co., 8 mi w Desert Experimental Range, Higgins 1613, 1963 (BRY!;US!;POM!).
- Cryptantha grahamii* Johnst. J. Arnold Arb. 18: 23. 1937. Boraginaceae. Uintah Co., mouth Sand Wash, Graham 7924, 1933 (GH).
- Cryptantha johnstonii* Higgins Great Basin Naturalist 28: 195. 1968. Boraginaceae. Emery Co., 15 mi w Hwy 50-6, Higgins 1310, 1968 (BRY!;POM!;US!;NY!).
- Cryptantha leptophylla* Rydb. Bull. Torrey Bot. Club 36: 679. 1909. Boraginaceae. = *C. nevadensis* Nels. & Kennedy Washington Co., St. George, Palmer 350, 1877 (NY!).
- Cryptantha ochroleuca* Higgins Great Basin Naturalist 28: 197. 1968. Boraginaceae. Garfield Co., Red Canyon, Higgins 1788, 1968 (BRY!;US!).
- Cryptantha rollinsii* Johnst. J. Arnold Arb. 20: 391. 1939. Boraginaceae. Uintah Co., 22 mi s Ouray, Rollins 1715, 1937 (GH;US!;CAS!;RM!;UTC!).
- Cuscuta denticulata* Engelm. in Parry Amer. Naturalist 9: 348. 1875. Cuscutaceae. Washington Co., near St. George, Parry 205, 1874 (US!;NY!;ISC!;BRY!).
- Cuscuta warneri* Yunker Brittonia 12: 38. 1960. Cuscutaceae. Millard (?) Co., Flowell, Warner sn, 1957 (US!;CAS!;BRY!;UT!;NY!;UTC!;ISC!).
- Cycladenia jonesii* Eastw. Leaf. W. Bot. 3: 159. 1942. Apocynaceae. = *C. humilis* var. *jonesii* (Eastw.) Welsh & Atwood Emery Co., San Rafael Swell, Jones sn, 1914 (CAS!;US!;BRY!).
- Cymopterus basalticus* Jones Contr. W. Bot. 12: 16. 1908. Apiaceae. Beaver (?) Co., Wah Wah, Jones sn, 1906 (POM!;BRY!).
- Cymopterus beckii* Welsh & Goodrich in Welsh Brittonia 33: 297. 1981. Apiaceae. Wayne Co., Fruita, Beck sn, 1938 (BRY!).
- Cymopterus corrugatus* var. *scopulicola* Jones Contr. W. Bot. 14: 39. 1912. Apiaceae. = *C. coulteri* (Jones) Mathias Juab Co., Sevier Bridge, Jones sn, 1910 (POM!).
- Cymopterus decipiens* Jones Zoe 2: 247. 1891. Apiaceae. = *C. fendleri* Gray Grand Co., Cisco, Jones sn, 1891 (POM!;US!;NY!).
- Cymopterus duchesnensis* Jones Contr. W. Bot. 13: 12. 1910. Apiaceae. Duchesne Co., Myton, Jones sn, 1908 (CAS!;US!;RM!;POM!;BRY!).
- Cymopterus higginsii* Welsh Great Basin Naturalist 35: 377. 1976. Apiaceae. Kane Co., 17 mi e Glen Canyon City, Welsh 12740, 1975 (BRY!;NY!).
- Cymopterus ibapensis* Jones Zoe 3: 302. 1893. Apiaceae. Tooele (?) Co., Deep Creek Valley, Jones sn, 1891 (POM!;US!;RM!).
- Cymopterus jonesii* Coult. & Rose Rev. N. Amer. Umbell. 80: 1888. Apiaceae. Syn: *Aulospermum jonesii* (Coult. & Rose) Coult. & Rose Beaver Co., Frisco, Jones 1808, 1880 (US!;CAS!;POM!;RM!;NY!;UT!;UTC!).
- Cymopterus longipes* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 124. 1871. Apiaceae. Syn: *Peucedanum lapidosum* Jones Salt Lake Co., near Salt Lake City, Watson 451, 1869 (US!;NY!).
- Cynomarathrum latilobum* Rydb. Bull. Torrey Bot. Club 40: 73. 1913. Apiaceae. = *Lomatium latilobum* (Rydb.) Mathias Grand Co., Wilson Mesa, Rydberg & Garrett 8371, 1911 (NY!;US!;UT!).
- Cynomarathrum scabrum* Coult. & Rose Contr. U.S. Natl. Herb. 7: 247. 1900. Apiaceae. = *Lomatium scabrum* (Coult. & Rose) Math. & Const. Beaver Co., Frisco, Jones 1864, 1880 (US!;CAS!;POM!;BRY!;NY!;UT!;UTC!).
- Cystium stramineum* Rydb. N. Amer. Fl. 24: 409. 1929. Fabaceae. = *Astragalus lentiginosus* var. *stramineus* (Rydb.) Barneby Washington Co., "S. Utah" Palmer sn, 1870 (NY!;US!).
- Dalea epica* Welsh Great Basin Naturalist 31: 90. 1971. Fabaceae. San Juan Co., 10 mi e Halls Crossing, Welsh 5205, 1966 (BRY!;NY!;ISC!).

*Dalea johnsonii* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 64. 1871. Fabaceae. = *Psorothamnus fremontii* (Torr.) Barneby Washington Co., near St. George, Johnson sn, 1870 (GH).

*Dalea nummularia* Jones Contr. W. Bot. 18: 41. 1933. Fabaceae. = *Psorothamnus polyadenius* var. *jonesii* Barneby Emery Co., Green River, Jones sn, 1914 (US!;CAS!;NY!).

*Daucophyllum lineare* Rydb. Bull. Torrey Bot. Club 40: 69. 1913. Apiaceae. = *Musineon lineare* (Rydb.) Mathias Cache Co., near Logan, Rydberg sn. 1895 (?).

*Delphinium abietorum* Tidestr. Proc. Biol. Soc. Washington 27: 61. 1914. Ranunculaceae. = *D. occidentale* Wats. Sanpete (?) Co., Wasatch Plateau, Coville & Tidestrom 19, 1908 (US!).

*Delphinium coelestinum* Rydb. Bull. Torrey Bot. Club 39: 320. 1912. Ranunculaceae. Syn: *D. amabile* Tidestr. (new name) = *D. scaposum* Greene Washington Co., St. George, Palmer 10, 1877 (NY!;US!).

*Delphinium leonardii* Rydb. Bull. Torrey Bot. Club 39: 320. 1912. Ranunculaceae. = *D. andersonii* Gray Salt Lake Co., Garfield, Leonard 205, 1884 (NY!).

*Delphinium scopulorum* var. *attenuatum* Jones Proc. Calif. Acad. II, 5: 617. 1895. Ranunculaceae. = *D. barbeyi* Huthl. Piute Co., head Bullion Creek, Jones 5893d. 1894 (POM!;US!).

*Descurainia richardsonii* (Sweet) Schulz var. *macroserma* Schulz Pflanzenr. 4. Fam. 105(Heft 86): 319. 1924. Brassicaceae. = *D. richardsonii* var. *brevipes* (Nutt.) Welsh & Reveal Salt Lake Co., Alta, Jones 1117, 1879 (UTC!).

*Dicoria paniculata* Eastw. Proc. Calif. Acad. II, 6: 298. 1896. Asteraceae. = *D. brandegei* Gray San Juan Co., McElmo & Recapture, Eastwood 51, 1895 (CAS!).

*Dicoria wetherillii* Eastw. Proc. Calif. Acad. II, 6: 299. 1896. Asteraceae. = *D. brandegei* Gray (monstrous form?) San Juan Co., San Juan River, Wetherill sn, 1895 (CAS!).

*Distichlis maritima* var. *laxa* Holm Bot. Gaz. 16: 277. 1891. Poaceae. = *D. stricta* (Torr.) Rydb. Utah, Lake Park, Tracy sn, 1887 (?).

*Dodecatheon zionense* Eastw. Leaf. W. Bot. 2: 37. 1937. Primulaceae. = *D. pulchellum* (Raf.) Merr. Washington Co., Zion Canyon, Eastwood & Howell 1144, 1933 (CAS!).

*Draba apiculata* C.L. Hitchc. Univ. Washington Publ. Biol. 11: 72. 1941. Brassicaceae. = *D. densifolia* var. *davisiae* (C.L. Hitchc.) Welsh & Reveal Summit Co., Uinta Mts, Payson & Payson 5048, 1926 (NY!;US!;RM!).

*Draba brachystylis* Rydb. Bull. Torrey Bot. Club 29: 240. 1902. Brassicaceae. Salt Lake Co., Wasatch Mts., Alta, Jones 1357, 1879 (NY!;US!;CAS!;RM!;POM!).

*Draba maguirei* C.L. Hitchc. var. *burkei* C.L. Hitchc. Univ. Washington Publ. Biol. 11: 70. 1941. Brassicaceae. Box Elder Co., Cottonwood Canyon, Burke 2968, 1932 (UTC!).

*Draba maguirei* C.L. Hitchc. var. *maguirei* Univ. Washington Publ. Biol. 11: 70. 1941. Brassicaceae. Cache Co., Bear River Range, Maguire et al. 14161, 1936 (WTU!;UTC!;NY!).

*Draba sobolifera* Rydb. Bull. Torrey Bot. Club 30: 251. 1903. Brassicaceae. Syn: *D. uncinatis* Rydb. Piute Co., Tate Mine, Jones 5936, 1894 (NY!;US!;POM!).

*Draba spectabilis* Greene var. *glabrescens* Schulz Pflanzenr. 4. Fam. 105 (Heft 89) : 84. 1927. Brassicaceae. = *D. spectabilis* Greene San Juan Co., LaSal Mts., Walker 275, 1912 (NY!;US!).

*Draba subalpina* Goodm. & Hitchc. Ann. Missouri Bot. Gard. 19: 77. 1932. Brassicaceae. Iron Co., Cedar Breaks, Goodman & Hitchcock 1622, 1930 (NY!;RM!).

*Draba uncinatis* Rydb. Bull. Torrey Bot. Club 30: 251. 1903. Brassicaceae. = *D. sobolifera* Rydb. Piute Co., Tate Mine, Jones 5940am, 1894 (US!;POM!).

*Draba valida* Goodding Bot. Gaz. 37: 55. 1904. Brassicaceae. = *D. lanceolata* Royle Uintah Co., Dyer Mine, Goodding 1402, 1902 (US!;RM!).

*Draba zionensis* C.L. Hitchc. Univ. Washington Publ. Biol. 11: 49. 1941. Brassicaceae. = *D. asprella* var. *zionensis* (C.L. Hitchc.) Welsh & Reveal Washington Co., Zion Canyon, Jones sn, 1923 (POM!;CAS!;BRY!).

*Drymocallis micropetala* Rydb. N. Amer. Fl. 22: 375. 1908. Rosaceae. = *Potentilla glandulosa* var. *micropetala* (Rydb.) Welsh & Johnst. Salt Lake Co., City Creek Canyon, Rydberg 6153, 1905 (US!;NY!).

*Echinocactus johnsonii* Parry ex Engelm. Rep. U.S. Geol. Explor 40th Parallel, Bot. 5: 117. 1871. Cactaceae. = *Neolloydia johnsonii* (Parry) L. Benson Washington Co., near St. George, Johnson sn, 1870? (GH?).

*Echinocactus whipplei* Engelm. & Bigel. var. *spiniosior* Engelm. Trans. Acad. Sci. St. Louis 2: 199. 1863. Cactaceae. = *Sclerocactus pubispinus* (Engelm.) L. Benson Utah, desert valley west of Camp Floyd, H. Engelmann sn, 1859 (MO).

*Echinocereus engelmannii* (Parry) Rumpler var. *purpureus* L. Benson Cact. & Succ. J. (Los Angeles) 41: 127. 1969. Cactaceae. Washington Co., near St. George, Benson 13637, 1949 (POM).

*Educinia macrocalyx* Small N. Amer. Fl. 22: 176. 1905. Saxifragaceae. = *Jamesia americana* T. & G. Utah Co., American Fork Canyon, Watson 371, 1869 (US!).

*Elymus salina* Jones Proc. Calif. Acad. II, 5: 725. 1895. Poaceae. Sevier Co., Salina Pass, Jones 5447, 1894 (RM!;BRY!;US!;NY!).

*Emmenanthe foliosa* Jones Zoe 4: 278. 1893. Hydrophyllaceae. = *Phacelia salina* (A. Nels.) J.T. Howell Tooele (?) Co., Deep Creek, Jones sn, 1891 (POM!;US!).

*Encelia microcephala* Gray Proc. Amer. Acad. 8: 657. 1873. Asteraceae. = *Helianthella microcephala* (Gray) Gray San Juan Co., Sierra Abajo, Newberry sn, 1859 (NY!).

*Encelia nudicaulis* Gray Proc. Amer. Acad. 8: 656. 1873. Asteraceae. = *Enceliopsis nudicaulis* (Gray) A. Nels. Utah. Bishop sn. 1872 (US!).

*Epilobium palmeri* Rydb. Bull. Torrey Bot. Club 31: 569. 1904. Onagraceae. = *E. saximontanum* Hausskn. Washington Co., (s. Utah), Palmer 156, 1877 (NY!).

*Epilobium tracyi* Rydb. Bull. Torrey Bot. Club 40: 63. 1913. Onagraceae. = *E. brachycarpum* Presl Weber Co., Ogden, Tracy & Evans 547, 1887 (NY!).

*Eremocarya muricata* Rydb. Bull. Torrey Bot. Club 36: 677. 1909. Boraginaceae. = *Cryptantha micrantha* (Torr.) Johnston. Southern Utah, Parry 164, 1874 (NY!;ISC!).

*Erigeron abajoensis* Cronq. Brittonia 6: 168. 1947. Asteraceae. San Juan Co., Abajo Mts., Rydberg & Garrett 9755, 1911 (NY!;UT!).



- Erigeron caespitosus* Nutt. var. *laccoliticus* Jones Proc. Calif. Acad. II, 5: 696. 1895. Asteraceae. = *E. caespitosus* Nutt. Garfield Co., Henry Mts., Jones 5661, 1894 (POM!;US!).
- Erigeron caespitosus* Nutt. var. *laccoliticus* Jones Proc. Calif. Acad. II, 5: 696. 1895. Asteraceae. = *E. caespitosus* Nutt. Garfield Co., Henry Mts., Jones 5661, 1894 (POM!;US!).
- Erigeron caespitosus* Nutt. var. *nauseosus* Jones Proc. Calif. Acad. II, 5: 696. 1895. Asteraceae. = *E. nauseosus* (Jones) Cronq. Piute Co., Marysvale, Jones 5386, 1894 (POM!;US!;NY!).
- Erigeron cinereus* var. *aridus* Jones Proc. Calif. Acad. II, 5: 695. 1895. Asteraceae. = *E. divergens* T. & G. Washington Co., Silver Reef, Jones 5149v, 1894 (POM!;US!).
- Erigeron controversus* Greene Leaf. Bot. Obs. & Crit. 2: 206. 1912. Asteraceae. = *E. garretti* A. Nels. Salt Lake Co., Alta, Jones 1207, 1879 (US!;POM!).
- Erigeron cronquistii* Maguire Brittonia 5: 201. 1944. Asteraceae. Cache Co., Logan Canyon, Maguire 16681, 1939 (NY!;US!;UTC!).
- Erigeron eatonii* Gray Proc. Amer. Acad. 16: 91. 1880. Asteraceae. Summit Co., Uinta Mts., Watson 546, 1869 (US!;NY!).
- Erigeron eatonii* Gray ssp. *typicus* Cronq. var. *molesus* Cronq. Brittonia 6: 172. 1947. Asteraceae. = *E. eatonii* Gray Tooele Co., Mt. Deseret Peak, Stansbury Range, Maguire and Holmgren 21773, 1943 (NY!;UTC!).
- Erigeron flagellaris* Gray var. *trilobatus* Maguire & Cronq. Brittonia 6: 258. 1947. Asteraceae. = *E. prose-lyticus* Nesom Iron Co., Cedar Breaks, Maguire 14947, 1934 (NY!;UTC!).
- Erigeron fruticetorum* Rydb. Fl. Rocky Mts. 906, 1067. 1917. Asteraceae. = *E. formosissimus* Greene San Juan Co., La Sal Mts., Rydberg & Garrett 8912, 1911 (NY!).
- Erigeron garrettii* A. Nels. in Coult. & Nels. Man. Bot. Centr. Rocky Mts. 526. 1909. Asteraceae. Syn: *E. controversus* Greene Salt Lake Co., Big Cottonwood Canyon, Garrett 1310, 1905 (RM!;UT!).
- Erigeron kachinensis* Welsh & Moore Proc. Utah Acad. 45: 231. 1968. Asteraceae. San Juan Co, Natural Bridges, Welsh & Moore 2398, 1963 (BRY!;NY!).
- Erigeron leiomerus* Gray Syn. Fl. N. Amer. II, 1: 211. 1884. Asteraceae. Syn: *E. minusculus* Greene Summit Co., Uintas, Watson 504, 1869 (NY!).
- Erigeron leiophyllus* Greene Leaf. Bot. Obs. & Crit. 2: 218. 1912. Asteraceae. = *E. speciosus* var. *macranthus* (Nutt.) Cronq. Salt Lake Co., Fort Douglas, Jones sn, 1880 (US!;POM!).
- Erigeron maguirei* Cronq. Brittonia 6: 165. 1947. Asteraceae. Emery Co., Calf Spring Wash, Maguire 18459, 1940 (NY!;UTC!).
- Erigeron mancus* Rydb. Fl. Rocky Mts. 902, 1067. 1917. Asteraceae. Syn: *E. pinnatisectus* var. *insolens* Macbr. & Payson Grand Co., La Sal Mts., Rydberg & Garrett 8671, 1911 (NY!;US!;UT!;RM!).
- Erigeron minusculus* Greene Leaf. Bot. Obs. & Crit. 2: 8. 1909. Asteraceae. = *E. leiomeris* Gray Salt Lake Co., Big Cottonwood Canyon, Garrett, 1906 (UT?).
- Erigeron pinnatisectus* A. Nels. var. *insolens* Macbr. & Payson Contr. Gray Herb. II, 49: 79. 1917. Asteraceae. = *E. mancus* Rydb. Grand Co., La Sal Mts., Walker 271, 1912 (GH:MINN:RM!).
- Erigeron pulvinatus* Rydb. non Wedd. Fl. Rocky Mts. 911, 1067. 1917. Asteraceae. = *E. compactus* Blake Juab Co., Deep Creek, Jones sn, 1891 (US!;POM!;BRY!;NY!).
- Erigeron pumilus* Nutt. ssp. *concinoides* Cronq. var. *subglaber* Cronq. Brittonia 6: 183. 1947. Asteraceae. San Juan Co., Monticello, Rydberg & Garrett 9141, 1911 (US!;RM!;UT!).
- Erigeron religiosus* Cronq. Brittonia 6: 258. 1947. Asteraceae. Washington Co., Clear Creek, Eastwood & Howell 6339, 1938 (CAS!;US!).
- Erigeron sionis* Cronq. Brittonia 6: 258. 1947. Asteraceae. Washington Co., Zion National Park, Pilsbry sn. 1925 (PH!).
- Erigeron sparsifolius* Eastw. Proc. Calif. Acad. II, 6: 297. 1896. Asteraceae. = *E. utahensis* Gray var. *sparsifolius* (Eastw.) Cronq. San Juan Co., Willow Creek, Eastwood 48, 1895 (CAS!).
- Erigeron stenophyllus* D.C. Eaton Rep. U.S. Geol. Explor. 40th Parallel, Bot 5: 152. 1871. Asteraceae. = *E. arenarioides* (D.C. Eaton) Rydb. Salt Lake Co., Cottonwood Canyon, Watson 547, 1869 (US!;NY!).
- Erigeron stenophyllus* var. *tetrapleuris* Gray Proc. Amer. Acad. 8: 650. 1873. Asteraceae. = *E. utahensis* Gray Kane Co., Kanab, Thompson sn, 1870 (GH).
- Erigeron uintahensis* Cronq. Bull. Torrey Bot. Club 70: 270. 1943. Asteraceae. Summit Co., Mill Creek, Payson 4894, 1936 (RM!;US!).
- Erigeron ursinus* D.C. Eaton Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 148. 1871. Asteraceae. Summit Co., Bear River Canyon, Watson 534, 1869 (US!;NY!).
- Erigeron vagus* Payson Univ. Wyoming Publ. Bot. 1: 179. 1926. Asteraceae. Grand Co., LaSal Mts., Payson & Payson 4033. 1924 (US!;BRY!;RM!;NY!).
- Eriogonum amophilum* Reveal Phytologia 23: 163. 1972. Polygonaceae. Millard Co., Ibex Warm Point, N. & P. Holmgren 4650, 1970 (US!;NY!;BRY!;UTC!).
- Eriogonum aretioides* Barneby Leaf. W. Bot. 5: 154. 1949. Polygonaceae. Garfield Co., Widtsoe, Ripley & Barneby 8570, 1947 (CAS!;NY!;BRY!).
- Eriogonum aureum* Jones Proc. Calif. Acad. II, 5: 718. 1895. Polygonaceae. = *E. corymbosum* var. *glutinosum* (Jones) Jones Washington Co., St. George, Jones 6091, 1894 (POM!;US!;NY!).
- Eriogonum batemanii* Jones Contr. W. Bot. 11: 11. 1903. Polygonaceae. Carbon Co., Price Valley, Jones sn, 1903 (US!;POM!).
- Eriogonum bicolor* Jones Zoe 4: 281. 1893. Polygonaceae. Grand Co., Thompsons Spring, Jones sn, 1891 (US!;POM!;NY!).
- Eriogonum biumbellatum* Rydb. Bull. Torrey Bot. Club 39: 306. 1912. Polygonaceae. = *E. umbellatum* var. *subaridum* Stokes Sevier Co., Fish Lake, Rydberg & Carlton 7409, 1905 (US!;RM!;NY!).
- Eriogonum brevicaule* Nutt. var. *pumihum* Stokes in Jones Contr. W. Bot. 11: 10. 1903. Polygonaceae. = *E. brevicaule* var. *laxifolium* (T. & G.) Reveal Carbon Co., between Colton and Kyme, Jones 5603, 1894 (POM?).
- Eriogonum cernuum* Nutt. var. *tenue* T. & G. Proc. Amer. Acad. 8: 182. 1870. Polygonaceae. = *E. cernuum* var. *cernuum* Weber Co., Weber Valley, Watson 1036, 1869 (US!).
- Eriogonum cernuum* Nutt. var. *umbraticum* Eastw. Proc. Calif. Acad. II, 6: 319. 1896. Polygonaceae. = *E. cernuum* var. *cernuum* San Juan Co., McElmo Creek, Eastwood sn. 1892 (CAS?).

*Eriogonum chrysocephalum* Gray ssp. *alpestre* Stokes Genus Eriogonum 93. 1936. Polygonaceae. = *E. paniculense* var. *alpestre* (Stokes) Reveal Iron Co., Cedar Breaks, Goodman & Hitchcock 1601, 1930 (CAS!; NY!; UTC!).

*Eriogonum clavellatum* Small Bull. Torrey Bot. Club 25: 48. 1898. Polygonaceae. San Juan Co., Bartons range, Eastwood 132, 1895 (US!; NY!).

*Eriogonum confertiflorum* var. *stansburyi* Benth. in DC Prodr. 14: 17. 1856. Polygonaceae. = *E. brevicaulis* var. *brevicaule* Utah (label data illegible), Stansbury sn, 1850 (NY!).

*Eriogonum corymbosum* Benth. in DC. var. *albigilvum* Reveal Great Basin Naturalist 27: 218. 1967. Polygonaceae. = *E. x duchesnense* Reveal Duchesne Co., Indian Canyon, J & C Reveal 726, 1967 (US!; BRY!; NY!; UTC!).

*Eriogonum corymbosum* Benth. in DC. var. *davidsei* Reveal Great Basin Naturalist 27: 216. 1967. Polygonaceae. Carbon Co., Wellington, Reveal & Davidse 956, 1967 (US!; BRY!; UT!; RM!; NY!; UTC!; ISC!).

*Eriogonum corymbosum* Benth. in DC. var. *divaricatum* T. & G. in Beckwith Rep. U.S. Explor. & Surv. R.R. Pacific 2: 29. 1857. Polygonaceae. Emery Co., Green River, Creutzfeldt sn, 1853 (NY!).

*Eriogonum corymbosum* Benth. in DC. var. *erectum* Reveal & Brotherson in Reveal Great Basin Naturalist 27: 213. 1968. Polygonaceae. Wasatch Co., W Duchesne, Holmgren & Reveal 3022, 1966 (UTC!; US!; BRY!; UT!; NY!; ISC!).

*Eriogonum corymbosum* Benth. in DC. var. *matthewsiae* Reveal Phytologia 35: 441. 1976. Polygonaceae. Washington Co., Springdale, Welsh et al. 9509, 1969 (BRY!; UT!).

*Eriogonum crispum* L.O. Williams Bull. Torrey Bot. Club 59: 427. 1932. Polygonaceae. = *E. corymbosum* var. *glutinosum* (Jones) Jones Iron Co., Cedar Canyon, Garrett 6027, 1931 (RM!; UT!).

*Eriogonum cronquistii* Reveal Madroño 19: 289. 1969. Polygonaceae. Garfield Co., Henry Mts., Holmgren & Reveal 3010, 1966 (BRY!; RM!; UT!; NY!; US!; UTC!; ISC!).

*Eriogonum deflexum* Torr. in Ives ssp. *hookeri* var. *gilvum* Stokes Genus Eriogonum 45. 1936. Polygonaceae. = *E. hookeri* Wats. Davis Co., Antelope Island, Cottam 6407, 1935 (UT!; UTC!).

*Eriogonum deflexum* Torr. in Ives ssp. *ultrum* Stokes Genus Eriogonum 45. 1936. Polygonaceae. = *E. nutans* var. *nutans* Sevier Co., Sevier Valley, Eastwood & Howell 623, 1933 (CAS!).

*Eriogonum duchesnense* Reveal (hybrid) Great Basin Naturalist 27: 194. 1968. Polygonaceae. Syn: *E. corymbosum* var. *albigilvum* Reveal Duchesne Co., Indian Canyon, Reveal 678, 1964 (UTC; US!; BRY!; NY!; UTC!).

*Eriogonum dudleyanum* Stokes Genus Eriogonum 90. 1936. Polygonaceae. = *E. kearneyi* Tidestr. var. *kearneyi* Tooele Co., Skull Valley, Jones sn, 1896 (CAS!; UT!).

*Eriogonum effusum* Nutt. var. *durum* Stokes Genus Eriogonum 80. 1936. Polygonaceae. = *E. corymbosum* var. *corymbosum* Carbon Co., Sunnyside, Jones 1113a, 1901 (POM!; NY!).

*Eriogonum effusum* Nutt. ssp. *orbiculatum* Stokes Genus Eriogonum 79. 1936. Polygonaceae. = *E. corymbosum* var. *orbiculatum* (Stokes) Reveal & Brotherson Emery Co., Green River, Jones sn, 1915 (POM!; BRY!).

*Eriogonum effusum* Nutt. ssp. *pallidum* var. *shandsii* Stokes Genus Eriogonum 81. 1936. Polygonaceae. = *E. leptocladon* var. *leptocladon* San Juan Co., 3 mi s Indian Creek, Shands 130, 1931 (UT!).

*Eriogonum ephedroides* Reveal Madroño 19: 295. 1969. Polygonaceae. Uintah Co., 10 mi s Bonanza, Holmgren et al. 2265, 1965 (UTC!; BRY!; UT!; RM!; ISC!).

*Eriogonum eremicum* Reveal Phytologia 23: 165. 1972. Polygonaceae. Millard Co., se Garrison, Holmgren et al. 2247, 1965 (UTC!; BRY!; UT!; RM!; ISC!).

*Eriogonum filicaule* Stokes Genus Eriogonum 32. 1936. Polygonaceae. = *E. subreniforme* Reveal Washington Co., Springdale, Eastwood & Howell 1171, 1933 (CAS!; US!; NY!).

*Eriogonum filiforme* L.O. Williams Bull. Torrey Bot. Club 59: 428. 1932. Polygonaceae. = *E. wetherillii* Eastw. Wayne Co., w Hanksville, Garrett 5975, 1931 (UT!; RM!).

*Eriogonum flexum* Jones var. *ferronis* Jones Contr. W. Bot. 11: 15. 1903. Polygonaceae. = *E. flexum* Jones Emery Co., w Ferron, Jones 5454, 1894 (US!; POM!).

*Eriogonum friscanum* Jones Contr. W. Bot. 11: 14. 1903. Polygonaceae. = *E. microthecum* var. *foliosum* (T. & G.) Reveal Beaver Co., Frisco, Jones (POM?).

*Eriogonum grayii* Reveal Phytologia 25: 193. 1973. Polygonaceae. Salt Lake Co., Lake Blanche, Holmgren et al. 7121, 1947 (UTC!; BRY!; ISC!).

*Eriogonum heracleoides* Nutt. var. *utahense* Gandg. Bull. Soc. Bot. Belgium 42: 190. 1906. Polygonaceae. = *E. heracleoides* Nutt. var. *heracleoides* Cache Co., Linford sn, 1897 (US!).

*Eriogonum hookeri* Wats. Proc. Amer. Acad. 14: 295. 1879. Polygonaceae. Syn: *E. deflexum* ssp. *hookeri* var. *gilvum* Stokes Utah Co., American Fork Canyon, Watson 1033, 1869 (US!; NY!).

*Eriogonum howellianum* Reveal Phytologia 25: 204. 1973. Polygonaceae. Syn: *E. glandulosum* authors, not (Nutt.) Nutt. Millard Co, se Garrison, Holmgren et al 2248, 1965 (US!; BRY!; UT!; RM!; UTC!).

*Eriogonum humivagans* Reveal Madroño 19: 219. 1969. Polygonaceae. San Juan Co., 13.5 miles e Monticello, Holmgren & Reveal 3001, 1969 (UTC!; US!; RM!; BRY!; UT!; NY!; ISC!).

*Eriogonum hylophilum* Reveal & Brotherson Great Basin Naturalist 27: 190. 1968. Polygonaceae. Duchesne Co., Gate Canyon, Holmgren & Reveal 3017, 1966 (UTC!; US!; RM!; BRY!; UT!; NY!; ISC!).

*Eriogonum insigne* Wats. Proc. Amer. Acad. 14: 295. 1879. Polygonaceae. Iron Co., Red Creek, Palmer 431, 1877 (NY!; BRY!; ISC!).

*Eriogonum intermontanum* Reveal Madroño 19: 293. 1969. Polygonaceae. Grand Co., Middle Canyon, Roan Cliffs, Holmgren et al. 2278, 1965 (UTC!; BRY!; UT!; RM!; ISC!).

*Eriogonum jamesii* Benth in DC. var. *rupicola* Reveal Phytologia 25: 202. 1973. Polygonaceae. Washington Co., Zion National Park, Reveal & Reveal 2874, 1972 (US!; BRY!; NY!; UTC!).

*Eriogonum kearneyi* Tidestr. Proc. Biol. Soc. Washington 26: 122. 1913. Polygonaceae. Syn: *E. dudleyanum* Stokes Tooele Co., w Tooele, Kearney & Shantz 3218 (US!).

*Eriogonum kingii* var. *laxifolium* T. & G. Proc. Amer. Acad. 8: 165. 1870. Polygonaceae. = *E. brevicaulle* Nutt. var. *laxifolium* (T. & G.) Reveal Salt Lake Co., Parleys Peak, Watson 1021, 1869 (US!).

*Eriogonum lancifolium* Reveal & Brotherson in Reveal Great Basin Naturalist 27: 188. 1967. Polygonaceae. Carbon Co., e Wellington, Reveal & Davidse 955, 1967 (UTC!;US!;RM!;BRY!;UT!;NY!;ISC!).

*Eriogonum leptoclodon* T. & G. in Beckwith var. *leptoclodon* Rep. U.S. Explor. & Surv. R.R. Pacific 2: 129. 1857. Polygonaceae. Syn: *E. effusum* spp. *pallidum* var. *shandsii* Stokes Emery Co., Green River, Creuzfeldt sn, 1853 (NY!).

*Eriogonum loganum* A. Nels. Bot. Gaz. 54: 149. 1912. Polygonaceae. Cache Co., Logan, Smith 1704, 1909 (RM!;BRY!).

*Eriogonum longilobum* Jones Proc. Calif. Acad. II, 5: 720. 1895. Polygonaceae. = *E. shockleyi* var. *longilobum* (Jones) Reveal Carbon Co., near Price, Jones 5590, 1894 (POM!;US!).

*Eriogonum medium* Rydb. Fl. Rocky Mts. 220, 1061. 1917. Polygonaceae. = *E. brevicaulle* Nutt. var. *laxifolium* (T. & G.) Reveal Juab or Utah Co., Mt. Nebo, Rydberg sn, 1905 (US!;RM!;NY!).

*Eriogonum nanum* Reveal Phytologia 25: 194. 1973. Polygonaceae. Box Elder Co., Willard Peak, Reveal & Holmgren 665, 1964 (UT!;BRY!;RM!).

*Eriogonum natum* Reveal in Welsh, Atwood, & Reveal Great Basin Naturalist 35: 363. 1975. Polygonaceae. Millard Co. 43 mi w Delta, Reveal & Reveal 3924, 1975 (BRY!;NY!;UTC!).

*Eriogonum nelsonii* L.O. Williams Bull. Torrey Bot. Club 59: 428. 1937. Polygonaceae. = *E. microthecum* Nutt. var. *foliosum* (Torr.) Reveal San Juan Co., Geyser Basin, Walker 368, 1912 (RM!;UT!).

*Eriogonum nudicaule* Small ssp. *garrettii* Stokes Genus Eriogonum 83. 1936. Polygonaceae. = *E. brevicaulle* Nutt. var. *brevicaule* Summit Co., Echo Reservoir, Garrett 7068, 1935 (US!;UT!;UTC!).

*Eriogonum nudicaule* Small ssp. *ochroflorum* Stokes Genus Eriogonum 83. 1936. Polygonaceae. = *E. spathulatum* Gray Sevier Co., Clear Creek Canyon, Jones 6104, 1894 (POM!;BRY!).

*Eriogonum nudicaule* Small ssp. *parleyense* Stokes Genus Eriogonum 84. 1936. Polygonaceae. = *E. brevicaulle* Nutt. var. *brevicaule* Salt Lake Co., Parleys Canyon, Stokes 213, 1934 (CAS!;NY!;UTC!;BRY!).

*Eriogonum nummulare* Jones Contr. W. Bot. 11: 13. 1903. Polygonaceae. Tooele Co., Dutch Mt., Jones sn (POM?).

*Eriogonum ochrocephalum* var. *angustum* Jones Contr. W. Bot. 11: 9. 1903. Polygonaceae. = *E. brevicaulle* Nutt. var. *laxifolium* (T. & G.) Reveal Tooele Co., Johnsons Pass, Jones sn (POM?).

*Eriogonum ostlundii* Jones Contr. W. Bot. 11: 12. 1903. Polygonaceae. Sevier Co., near Elsinore, Jones sn (POM?).

*Eriogonum ovalifolium* Nutt. var. *utahense* Gandg. Bull. Soc. Bot. Belgique 42: 191. 1906. Polygonaceae. = *E. ovalifolium* Nutt. var. *ovalifolium* Cache Co., Linford sn, 1897 (US!).

*Eriogonum palmeri* Wats. Proc. Amer. Acad. 14: 267. 1879. Polygonaceae. = *E. plumatella* Dur. & Hilg. Washington (?) Co., Palmer sn, 1870 (US!).

*Eriogonum parryi* Gray Proc. Amer. Acad. 10: 77. 1874. Polygonaceae. = *E. brachypodum* T. & G. Washington Co., St. George, Parry 239, 1874 (US!;NY!;BRY!).

*Eriogonum pauciflorum* var. *panguicense* Jones Contr. W. Bot. 11: 9. 1903. Polygonaceae. = *E. panguicense* (Jones) Reveal Garfield Co., Panguitch, Jones sn, 1890 (POM!).

*Eriogonum pharnaceoides* Torr. in Sitgr. var. *cervinum* Reveal Great Basin Naturalist 34: 245. 1974. Polygonaceae. Washington Co., Pine Valley Mts., Atwood & Higgins 5895, 1973 (US!;BRY!;RM!;UTC!).

*Eriogonum porteri* Small Bull. Torrey Bot. Club 25: 41. 1898. Polygonaceae. = *E. umbellatum* Torr. var. *porteri* (Small) Stokes Summit Co., Bear River Canyon, Watson 1014, 1869 (US!;NY!).

*Eriogonum puberulum* Wats. Proc. Amer. Acad. 14: 295. 1879. Polygonaceae. Iron Co., Red Creek, Palmer 429, 1877 (US!;NY!;BRY!;ISC!).

*Eriogonum pulvinatum* Small Bull. Torrey Bot. Club 25: 44. 1898. Polygonaceae. = *E. shockleyi* Wats. var. *shockleyi* Beaver Co., Milford, Jones 1775, 1880 (US!;UT!;POM!;NY!;UTC!).

*Eriogonum ramosissimum* Eastw. Proc. Calif. Acad. II, 6: 322. 1896. Polygonaceae. = *E. leptoclodon* T. & G. var. *ramosissimum* (Eastw.) Reveal San Juan Co., Butter Spring, Eastwood 134, 1895 (US!;CAS!).

*Eriogonum revealianum* Welsh Great Basin Naturalist 30: 17. 1970. Polygonaceae. = *E. corymbosum* var. *revealianum* (Welsh) Reveal Garfield Co., s Antimony, Welsh & Welsh 9389, 1969 (BRY!;US!;UT!;RM!;NY!).

*Eriogonum rubiflorum* Jones Zoe 4: 281. 1893. Polygonaceae. = *E. nutans* T. & G. var. *nutans* Tooele Co., Dugway, Jones sn, 1891 (POM!;US!;NY!).

*Eriogonum saurinum* Reveal Great Basin Naturalist 27: 197. 1967. Polygonaceae. Uintah Co., 10 mi e Vernal, Holmgren & Reveal 3019, 1966 (UTC!;UT!;BRY!;US!;RM!;NY!;ISC!).

*Eriogonum scabrellum* Reveal Ann. Missouri Bot. Gard. 55: 74. 1968. Polygonaceae. Grand Co, Westwater, Reveal & Davidse 949, 1967 (UTC!;US!;BRY!;UT!;RM!;NY!;ISC!).

*Eriogonum smithii* Reveal Great Basin Naturalist 24: 202. 1967. Polygonaceae. Emery Co., San Rafael Desert, Holmgren & Reveal 3012, 1966 (UTC!;US!;BRY!;UT!;RM!;ISC!).

*Eriogonum soredium* Reveal Great Basin Nat. 41: 229. 1981. Polygonaceae. Beaver Co., Crampian Hill, near Frisco, Welsh et al. 20192, 1980 (BRY!).

*Eriogonum spathuliforme* Rydb. Bull. Torrey Bot. Club 39: 307. 1912. Polygonaceae. = *E. ostlundii* Jones Piute Co., near Mt. Belknap, Stokes sn, 1900 (US!).

*Eriogonum spathulatum* Gray Proc. Amer. Acad. 10: 76. 1874. Polygonaceae. Syn: *E. nudicaule* Small ssp. *ochroflorum* Stokes Sevier (?) Co., Sevier River Valley, Parry 245, 1874 (ISC!).

*Eriogonum subreniforme* Wats. Proc. Amer. Acad. 12: 260. 1877. Polygonaceae. Syn: *E. filicaule* Stokes Washington Co., Parry 237, 1874 (ISC!).

*Eriogonum sulcatum* Wats. Proc. Amer. Acad. 14: 296. 1879. Polygonaceae. = *E. heermanii* var. *sulcatum* (Wats.) Munz & Reveal Washington Co., near St. George, Palmer 432, 1877 (US!;NY!;BRY!).



- Eriogonum sulcatum* Wats. var. *argense* Jones Contr. W. Bot. 11: 15. 1903. Polygonaceae. = *E. heermanni* Dur. & Hilg. var. *argense* (Jones) Munz Utah, Jones.
- Eriogonum tenellum* ssp. *cottamii* Stokes Genus Eriogonum 70. 1936. Polygonaceae. = *E. brevicaule* var. *cottamii* (Stokes) Reveal Utah Co., West Mountain, Cottam 411, 1925 (BRY!;UT!).
- Eriogonum tenellum* var. *grandiflorum* Gandg. Bull. Soc. Bot. Belgium 42: 197. 1906. Polygonaceae. = *E. microthecum* var. *laxiflorum* Hook. Rich Co., Linford sn, 1897 (?).
- Eriogonum thompsonae* Wats. var. *albiflorum* Reveal Madroño 19: 299. 1969. Polygonaceae. Washington Co., w Virgin, Holmgren & Reveal 2991, 1966 (UTC!; US!;BRY!;UT!;RM!;NY!;ISC!).
- Eriogonum thompsonae* Wats. var. *thompsonae* Amer. Naturalist 7: 302. 1873. Polygonaceae. Kane Co., Kanab, Thompson sn, 1872 (GH;US!;BRY!;NY!).
- Eriogonum triste* Wats. Proc. Amer. Acad. 10: 347. 1875. Polygonaceae. = *E. alatum* Torr. in Sitgr. Kane Co., Siler sn, 1873 (US!;NY!;BRY!;ISC!).
- Eriogonum umbellatum* Torr. var. *desereticum* Reveal in Welsh, Atwood, & Reveal Great Basin Naturalist 35: 365. 1975. Polygonaceae. Utah Co., Mt. Timpanogos, near Timpooneke Campground, Reveal 3702. 1974 (US!;BRY!;NY!;UTC!).
- Eriogonum umbellatum* Torr. var. *glabratum* Stokes Genus Eriogonum 109. 1936. Polygonaceae. = *E. umbellatum* Torr. var. *aureum* (Gandg.) Reveal Emery Co., Huntington Canyon, Garrett 7036, 1935 (UT!).
- Eriogonum villiflorum* Gray var. *tumulosum* Barneby Leaf. W. Bot. 5: 153. 1949. Polygonaceae. = *E. tumulosum* (Barneby) Reveal Emery Co., sw Woodside, Ripley & Barneby 8678, 1947 (CAS!;NY!;BRY!;UTC!).
- Eriogonum viridulum* Reveal Proc. Utah Acad. 42: 287. 1966. Polygonaceae. Duchesne Co., 8 mi e Duchesne, Reveal 675, 1964 (UTC!;BRY!;UT!;RM!;NY!;ISC!).
- Eriogonum wasatchense* Jones Contr. W. Bot. 11: 11. 1903. Polygonaceae. = *E. brevicaule* var. *wasatchense* (Jones) Reveal Utah Co., American Fork Canyon, Jones 1877, 1880 (US!;POM!;UTC!).
- Eriogonum wetherillii* Eastw. Proc. Calif. Acad. II, 6: 319. 1896. Polygonaceae. Syn: *E. filiforme* L.O. Williams San Juan Co., San Juan River, Eastwood 124, 1895 (CAS!).
- Eriogonum zionis* J. T. Howell Leaf. W. Bot. 2: 253. 1940. Polygonaceae. Washington Co. Zion National Park, Eastwood & Howell 6344, 1938 (CAS!).
- Eritrichium barbigerum* Gray Synop. Fl. N. Amer. 2(1): 194. 1878. Boraginaceae. = *Cryptantha barbiger* (Gray) Greene Washington Co., St. George, Parry 171, 1874 (GH;ISC!).
- Eritrichium elongatum* Wight var. *paysonii* Johnst. J. Arnold Arb. 33: 67. 1952. Boraginaceae. = *E. nanum* var. *elongatum* (Wight) Cronq. Summit Co., Uinta Mts, Maguire et al 14385, 1936 (RM!).
- Eritrichium holopterum* Gray Proc. Amer. Acad. 12: 81. 1876. Boraginaceae. = ? Southern Utah, Bishop sn, 1873 (GH?).
- Eritrichium holopterum* Gray var. *submolle* Gray Proc. Amer. Acad. 13: 374. 1878. Boraginaceae. = *Cryptantha utahensis* (Gray) Greene Washington Co., St. George, Palmer sn, 1870 (NY!).
- Eritrichium pterocaryum* Torr. var. *pectinatum* Gray Proc. Amer. Acad. 10: 61. 1874. Boraginaceae. = *Cryptantha pterocarya* var. *pterocarya* Southern Utah, Parry sn, 1874 (NY!).
- Eritrichium setosissimum* Gray Proc. Amer. Acad. 12: 80. 1876. Boraginaceae. = *Cryptantha setosissima* (Gray) Payson Sevier Co., Fish Lake, Ward sn, 1875 (GH).
- Erysimum asperum* (Nutt.) DC. var. *purshii* Durand Trans. Amer. Phil. Soc. II. 159. 1860. Brassicaceae. Syn: *E. capitatum* (Dougl.) Greene Salt Lake Co., near Great Salt Lake, Salt Lake Valley, Carrington sn, 1857 (P).
- Erythrocoma brevifolia* Greene Leaf. Bot. Obs. & Crit. 1: 176. 1906. Rosaceae. = *Ceum triflorum* Pursh Garfield Co., Panguitch Lake, Jones 6002q, 1894 (US!).
- Erythronium utahense* Rydb. Fl. Rocky Mts. 165, 1061. 1917. Liliaceae. = *E. grandiflorum* Pursh Salt Lake Co., Salt Lake, Stansbury sn, 1850 (NY!).
- Eschscholzia ludens* Greene Pittonia 5: 272. 1905. Papaveraceae. = *E. minutiflora* Wats. Washington Co., St. George, Jones 5110a, 1894 (US!;POM!).
- Euphorbia nephredenia* Barneby Leaf. W. Bot. 10: 314. 1966. Euphorbiaceae. Kane Co., Cottonwood Canyon, Barneby 14434, 1966 (NY!;US!;BRY!;UTC!).
- Euphorbia parryi* Engelm. in Parry Amer. Naturalist 9: 350. 1875. Euphorbiaceae. Washington Co., near St. George, Parry s47, 1874 (MO).
- Euphorbia podagrica* L.M. Johnston Univ. Calif. Publ. Bot. 7: 440. 1922. Euphorbiaceae. Utah, Purpus 6432, 1898 (US!).
- Euphorbia robusta* (Engelm.) Small ex Britt. & Brown var. *interioris* J.B.S. Norton N. Amer. Euphorbia 49. 1899. Euphorbiaceae. = *E. robusta* (Engelm.) Small Wasatch Mts., Watson 1081, 1869 (US!).
- Eurotia subspinos*a Rydb. Bull. Torrey Bot. Club 39. 313. 1912. Chenopodiaceae. = *Ceratoides subspinos*a (Rydb.) J.T. Howell Washington Co., St. George, Goodding 810. 1903 (US!).
- Festuca brevifolia* R. Br. var. *utahensis* St-Yves Candolle 2: 257. 1925. Poaceae. = *F. ovina* L. Salt Lake Co., Alta, M.E.D. (possibly M.E. Jones) sn, 1895 (NY!).
- Festuca dasyclada* Hack. ex Beal Grasses N. Amer. 2: 602. 1896. Poaceae. Emery (?) Co., Parry 93, 1874 (US!;ISC!;NY!).
- Festuca jonesii* Vasey Contr. U.S. Natl. Herb. 1: 278. 1893. Poaceae. = *F. subulata* Trin. Salt Lake Co., City Creek Canyon, Jones sn, 1880 (US!;POM!).
- Fragaria virginiana* Duchesne var. *glauca* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 280. 1871. Rosaceae. = *F. virginiana* (Wats.) Kuntze Washington Co., Parleys Park, Watson 322, 1869 (US!;NY!).
- Frasera albomarginata* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 220. 1871. Gentianaceae. = *Swertia albomarginata* (Wats.) Kuntze Washington Co., near St. George, Palmer, 1879 (US!;NY!).
- Frasera utahensis* Jones Zoe 2: 14. 1891. Gentianaceae. = *Swertia paniculata* (Torr.) St. John Kane (?) Co., (possibly House Rock Valley), Bucksin Mts., Jones sn, 1890 (US!;POM!).
- Fraxinus anomala* Torr. in Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 283. 1871. Oleaceae. San Juan (?) Co., Labrynth Canyon, Newberry sn, 1859 (NY!).
- Fritillaria dichroa* Gandg. Bull. Soc. Bot. France 66: 291. 1920. Liliaceae. = *F. pudica* (Pursh) Spreng. Cache Co., Linford sn, 1897 (?).

- Fritillaria leucella* Gandg. Bull. Soc. Bot. France 66: 291. 1920. Liliaceae. = *F. pudica* (Pursh) Spreng. Cache Co., Linford sn, 1897 (?).
- Fritillaria utahensis* Gandg. Bull. Soc. Bot. France 66: 291. 1920. Liliaceae. = *F. pudica* (Pursh) Spreng. Cache Co., Linford sn, 1897 (?).
- Gaillardia acaulis* Gray Proc. Amer. Acad. 10: 73. 1874. Asteraceae. = *G. parryi* Greene Washington Co., St. George, Parry 120, 1874 (NY!;NDG!).
- Gaillardia crassifolia* Nels. & Macbr. Bot. Gaz. 61: 46. 1916. Asteraceae. = *G. pinnatifida* Torr.? Washington Co., LaVerkin, Jones 5177, 1894 (US!;NY!;BRY!).
- Gaillardia flava* Rydb. N. Amer. Fl. 34: 139. 1915. Asteraceae. Emery Co., Lower Crossing, Jones 6412, 1898 (US!;BRY!;POM!).
- Gaillardia gracilis* A. Nels. Bot. Gaz. 37: 276. 1904. Asteraceae. = *G. pinnatifida* Torr. Washington Co., Diamond Valley, Gooding 894, 1902 (US!;RM!).
- Gaillardia spathulata* Gray Proc. Amer. Acad. 12: 59. 1876. Asteraceae. Wayne Co., Rabbit Valley, Ward 401, 1875 (US!;NY!).
- Gaillardia straminea* A. Nels. Univ. Wyoming Publ. Bot. 1: 137. 1926. Asteraceae. = *G. pinnatifida* Torr. Washington Co., LaVerkin, Jones 5177, 1894 (RM!;NY!;BRY!).
- Galium bifolium* Wats. Rep. U.S. Geol. Explor. 40th Parallel. Bot. 5: 134. 1871. Rubiaceae. Salt Lake Co. (?), Wasatch Mts., Watson 480. 1869 (US!;NY!).
- Galium desereticum* Dempst. & Ehrend. Brittonia 17: 314. 1965. Rubiaceae. = *G. multiflorum* var. *multiflorum* Juab Co., Fish Springs, Jones sn, 1891 (US!;POM!).
- Galium filipes* Rydb. Fl. Rocky Mts. 809, 1066. 1917. Rubiaceae. = *G. mexicanum* var. *asperulum* Gray Salt Lake Co., City Creek Canyon, Leonard 16665, 1883 (NY!).
- Galium hypotrichium* Gray ssp. *scabriusculum* Ehrend. Contr. Dudley Herb. 5: 13. 1956. Rubiaceae. = *G. multiflorum* var. *multiflorum* Emery Co., Calf Spring Wash, Maguire 18437, 1940 (CAS!;UTC!).
- Galium hypotrichium* ssp. *utahense* Ehrend. Contr. Dudley Herb. 5: 12. 1956. Rubiaceae. = *G. multiflorum* var. *multiflorum* Utah Co., Provo, Gooding 1116, 1902 (ISC!).
- Galium multiflorum* Kellogg var. *watsonii* Gray Syn. Fl. N. Amer. 1(2): 40. 1884. Rubiaceae. = *G. multiflorum* var. *multiflorum* Syn: *G. watsonii* (Gray) Heller Wasatch Mts., Watson 484, 1869 (US!;NY!).
- Galium scabriusculum* (Ehrend.) Dempst. & Ehrend. ssp. *protoscabriusculum* Dempst. & Ehrend. Brittonia 17: 312. 1965. Rubiaceae. = *G. multiflorum* var. *multiflorum* Carbon Co., Castle Gate, Ehrendorfer & Stutz 5954, 1959 (RM!;UTC!).
- Galium utahense* Eastw. Leaf. W. Bot. 1: 55. 1933. Rubiaceae. = *G. boreale* L. Wasatch Co., Soldier Summit, Eastwood 7668, 1918 (CAS!).
- Gentiana calycosa* Griseb. ssp. *apetala* Maguire Madroño 6: 151. 1942. Gentianaceae. = *G. calycosa* Griseb. Duchesne Co., w Mt. Agassiz, Maguire et al. 4225. 1933 (UTC!).
- Gentiana tortuosa* Jones Proc. Calif. Acad. II, 5: 707. 1895. Gentianaceae. = *Gentianella tortuosa* (Jones) Gillett Garfield Co., Panguitch Lake, Jones 6008, 1894 (POM!;US!).
- Geranium marginale* Rydb. ex Hanks & Small N. Amer. Fl. 25: 16. 1907. Geraniaceae. Garfield Co., Aquarius Plateau, Rydberg & Carlton 7401, 1905 (NY!).
- Gilia aggregata* (Pursh) Spreng. ssp. *aggregata* var. *attenuata* f. *utahensis* Brand Pflanzenreich 4. Fam. 250: 116. 1907. Polemoniaceae. = *G. aggregata* var. *macrocephalon* Kearney & Peebles Salt Lake Co., Alta, Jones 1122, 1879 (POM!;UTC!).
- Gilia arenaria* Benth. var. *rubella* Brand in Engler Pflanzenreich 4. Fam. 250: 103. 1907. Polemoniaceae. = *G. hutchinsifolia* Rydb. Washington Co., St. George, Jones 1651, 1880 (US!;POM!;NY!).
- Gilia caespitosa* Gray Proc. Amer. Acad. 12: 80. 1876. Polemoniaceae. Wayne Co., Rabbit Valley, Ward 575, 1875 (US!;NY!;BRY!).
- Gilia congesta* Hook. var. *nuda* Eastw. Proc. Calif. Acad. II, 6: 308. 1896. Polemoniaceae. = *G. roseata* Rydb. Syn: *G. nuda* (Eastw.) Rydb. San Juan Co., Willow Creek, Eastwood 80, 1895 (US!;CAS!).
- Gilia congesta* Hook. var. *paniculata* Jones Proc. Calif. Acad. II, 5: 712. 1895. Polemoniaceae. = *G. congesta* var. *congesta* Emery Co., Huntington, Jones 5464m, 1894 (POM!;US!).
- Gilia debilis* Wats. Amer. Naturalist 7: 302. 1873. Polemoniaceae. = *Collomia debilis* (Wats.) Greene Salt Lake Co., Wasatch Mts., above Salt Lake City, Wheeler sn, 1872 (US!).
- Gilia depressa* Jones in Gray Proc. Amer. Acad. 16: 106. 1880. Polemoniaceae. Syn: *Ipomopsis depressa* (Jones) V. Grant Millard Co., Deseret, Jones 1772, 1880 (GH;US!;CAS!;POM!;BRY!;NY!;UTC!).
- Gilia filiformis* Parry ex Gray Proc. Amer. Acad. 10: 75. 1874. Polemoniaceae. Washington Co., near St. George, Parry 187, 1874 (NY!;ISC!;BRY!).
- Gilia floribunda* var. *arida* Jones Proc. Calif. Acad. II, 5: 713. 1895. Polemoniaceae. = *Leptodactylon watsonii* (Gray) Rydb. Wayne Co., Capitol Wash, Jones 5701a, 1894 (POM!;US!).
- Gilia frutescens* Rydb. Bull. Torrey Bot. Club 40: 471. 1913. Polemoniaceae. = *G. congesta* var. *frutescens* (Rydb.) Cronq. Washington Co., Springdale, Jones 5247, 1894 (NY!;US!).
- Gilia gracilis* Hook. ssp. *spirillifera* var. *nana* Brand in Engler Pflanzenr. 4. Fam. 250: 92. 1907. Polemoniaceae. = *Microsteris gracilis* (Hook.) Greene Millard Co., Fillmore, Jones 1684 (POM!;UT!).
- Gilia inconspicua* (J.E. Sm.) Sweet ssp. *euinconspicua* var. *variegata* Brand in Engler Pflanzenr. 4. Fam. 250: 105. 1907. Polemoniaceae. = *G. inconspicua* (J.E. Sm.) Sweet Kane Co., Kanab, Jones 5280, 1894 (?).
- Gilia latifolia* Wats. in Parry Amer. Naturalist 9: 347. 1875. Polemoniaceae. Washington Co., near St. George, Parry 188, 1874 (GH;US!;CAS!;NY!;BRY!;ISC!).
- Gilia leptomeria* Gray Proc. Amer. Acad. 8: 278. 1870. Polemoniaceae. Syn: *G. leptomeria* var. *tridentata* Jones; *G. triodon* Eastw. Tooele Co., Stansbury Island, Watson 27, 1869 (NY!).
- Gilia leptomeria* Gray var. *tridentata* Jones Proc. Calif. Acad. II, 5: 713. 1895. Polemoniaceae. = *G. leptomeria* Gray Emery Co., Emery, Jones 5445n, 1894 (POM;US!).

- Gilia mercierae* Jones Proc. Calif. Acad. II, 5: 712. 1895. Polemoniaceae. = *G. pinnatifida* Nutt. Piute Co., Marysville, Jones 5378, 1894 (POM!;US!;CAS!;BRY!;RM!;NY!).
- Gilia scopulorum* Jones Bull. Torrey Bot. Club 8: 70. 1881. Polemoniaceae. Syn: *G. scopulorum* var. *deformis* Brand Washington Co., St. George, Jones 1659, 1880 (US!;POM!;NY!;UTC!).
- Gilia scopulorum* Jones var. *deformis* Brand Pflanzen. 4. Fam. 250: 109. 1907. Polemoniaceae. = *G. scopulorum* Jones? Southern Utah, Parry 198, 1874 (?).
- Gilia stenothyrsa* Gray Proc. Amer. Acad. 8: 276. 1870. Polemoniaceae. Duchesne (?) Co., "Among cedars between Duchesne and Lake Fork," Fremont sn, 1845 (NY!).
- Gilia straminea* Rydb. Bull. Torrey Bot. Club 40: 472. 1913. Polemoniaceae. = *G. inconspicua* var. *sinuata* (Hook.) Gray Washington Co., St. George, Palmer 325, 1877 (NY!).
- Gilia superba* Eastw. Zoe 4: 123. 1893. Polemoniaceae. = *G. subnuda* Torr. San Juan Co., Hatches Wash, Eastwood sn, 1892 (CAS!;POM!).
- Gilia tenerrima* Gray Proc. Amer. Acad. 8: 277. 1870. Polemoniaceae. Summit Co., Bear River Valley, Watson 922, 1869 (NY!).
- Gilia tenuituba* Rydb. Bull. Torrey Bot. Club 40: 472. 1913. Polemoniaceae. = *G. aggregata* var. *macrosiphon* Kearney & Peebles Beaver (?) Co., Beaver City, Palmer 320, 1877 (NY!;US!).
- Gilia tridactyla* Rydb. Fl. Rocky Mts. 692, 1065. 1917. Polemoniaceae. Piute Co., Brigham Peak, Jones 5949, 1894 (US!;NY!;POM!).
- Gilia triodon* Eastw. Zoe 4: 121. 1893. Polemoniaceae. = *G. leptomeria* Gray San Juan Co., Ruin Canyon, Eastwood sn, 1892 (CAS!).
- Gilia watsonii* Gray Proc. Amer. Acad. 8: 267. 1870. Polemoniaceae. = *Leptodactylon watsonii* (Gray) Rydb. Salt Lake Co., Cottonwood Canyon, Watson sn, 1869 (NY!).
- Glycosma maxima* Rydb. Bull. Torrey Bot. Club 40: 67. 1913. Apiaceae. = *Osmorhiza occidentalis* (Nutt.) Torr. Juab Co., Mt. Nebo, Rydberg & Carlton 7585, 1905 (NY!).
- Glyptopleura setulosa* Gray Proc. Amer. Acad. 9: 211. 1874. Asteraceae. Washington Co., St. George, Palmer 6, 1870 (US!;NY!;BRY!).
- Grayia brandegei* Gray Proc. Amer. Acad. 11: 101. 1876. Chenopodiaceae. San Juan (?) Co., San Juan R., Brandege sn, 1875 (GH).
- Grindelia laciniata* Rydb. Fl. Rocky Mts. 848, 1066. 1917. Asteraceae. = *G. fastigiata* Greene San Juan Co., Montezuma Canyon, Rydberg & Garrett 9692, 1911 (NY!;US!).
- Grindelia stylosa* Eastw. Proc. Calif. Acad. II, 6: 293. 1896. Asteraceae. = *Vanceleva stylosa* (Eastw.) Greene San Juan Co., Bartons range, Eastwood 713, 1895 (US!;CAS!;NY!).
- Gutierrezia sarothrae* (Pursh) Britt. & Rusby var. *pomariensis* Welsh Great Basin Naturalist 30: 19. 1970. Asteraceae. = *Xanthocephalum sarothrae* var. *pomariense* (Welsh) Welsh Uintah Co., Orchard Creek Draw, Welsh et al. 9471, 1969 (BRY!).
- Gymnolomia hispida* Robins. & Greenm. var. *ciliata* Robins. & Greenm. Proc. Boston Soc. Nat. Hist. 29: 93. 1899. Asteraceae. = *Helioneris hispida* (Gray) Cockerell Syn: *Viguiera ciliata* (Robins. & Greenm.) Blake Southern Utah, Palmer 245, 1877 (US!).
- Gymnolomia linearis* Rydb. Bull. Torrey Bot. Club 37: 327. 1910. Asteraceae. = *Helioneris multiflora* var. *nevadensis* (A. Nels.) Yates Washington Co., St. George, Palmer 241, 1877 (NY!).
- Gymnolomia multiflora* var. *annua* Jones Proc. Calif. Acad. II, 5: 698. 1895. Asteraceae. = *Helioneris longifolia* var. *annua* (Jones) Yates Utah?, Jones ?, (?).
- Hackelia ibapensis* Shultz & Shultz Brittonia 33: 157. 1981. Boraginaceae. Juab Co., Deep Creek Range, L. & J. Shultz 4350, 1980 (NY!;UTC!).
- Hackelia patens* (Nutt.) Johnst. var. *harrisonii* Gentry Southw. Naturalist 19: 140. 1974. Boraginaceae. Washington Co., Pine Valley, Gentry 2002, 1968 (NY!;CAS!;BRY!;UTC!).
- Halostachys occidentalis* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 293. 1871. Chenopodiaceae. = *Allenrolfia occidentalis* (Wats.) Kuntze Box Elder Co., Raft River Valley, Watson 995, 1869 (US!).
- Hamosa atratiformis* Rydb. Bull. Torrey Bot. Club 34: 48. 1907. Fabaceae. = *Astragalus straturensis* Jones Washington Co., Parry 47, 1874 (NY!;ISC!).
- Haplopappus cervinus* Wats. Amer. Naturalist 7: 301. 1873. Asteraceae. Utah, Antelope Canyon, Wheeler sn, 1872 (US!).
- Haplopappus nuttallii* T. & G. var. *depressus* Maguire Amer. Midl. Naturalist 37: 144. 1947. Asteraceae. = *M. grindelioides* var. *depressa* (Maguire) Cronq. & Keck Millard Co., Desert Experimental Range, Maguire 20859, 1941 (US!;NY!;UTC!).
- Haplopappus parryi* Gray var. *minor* Gray Syn. Fl. N. Amer. 1(2): 131. 1884. Asteraceae. = *Solidago parryi* (Gray) Greene Salt Lake Co., Alta, Bald Mtn., Jones sn?, 1879 (POM!;BRY!;NDG!).
- Haplopappus scopulorum* (Jones) Blake in Tidestr. var. *hirtellus* Blake Proc. Biol. Soc. Washington 48: 170. 1935. Asteraceae. Iron Co., Cedar Canyon, Garrett 6051, 1931 (US!;UT!).
- Hedysarum gremiale* Rollins Rhodora 42: 230. 1940. Fabaceae. = *H. boreale* var. *gremiale* (Rollins) Northstrom & Welsh Uintah Co., 14 mi n Vernal, Rollins 1733, 1937 (US!;CAS!;RM!;UTC!).
- Hedysarum occidentale* Greene var. *canone* Welsh Great Basin Naturalist 38: 314. 1978. Fabaceae. Carbon Co., Soldier Creek, Welsh & Taylor, 15256, 1977 (BRY!;NY!).
- Hedysarum utahense* Rydb. Bull. Torrey Bot. Club 34: 425. 1907. Fabaceae. = *H. boreale* var. *boreale* Salt Lake Co., Salt Lake City, Leonard 55, 1883 (NY!).
- Helianthella multicaulis* D.C. Eaton in Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 170. 1871. Asteraceae. = *H. uniflora* (Nutt.) T. & G. Summit Co., Parleys Park, Watson 605, 1869 (US!;NY!).
- Helianthus anomalus* Blake J. Washington Acad. Sci. 21: 333. 1931. Asteraceae. Wayne Co., s Hanksville, Stanton 4806, 1930 (US!;UT!).
- Helianthus bracteatus* E.E. Watson Papers Michigan Acad. Sci. 9: 393. 1929. Asteraceae. = *H. nuttallii* T. & G. Cache Co., Logan, Mulford 177, 1898 (MO!).



*Helianthus deserticolus* Heiser Proc. Indiana Acad. Sci. 70: 209. 1961. Asteraceae. Washington Co., w Hurricane, Stoutamire 2574, 1957 (IND).

*Helianthus giganteus* var. *utahensis* D.C. Eaton in Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 169. 1871. Asteraceae. = *H. nuttallii* T. & G. Wasatch Mts., Watson 603, 1869 (US!).

*Hermidium alipes* Wats. var. *pallidum* C.L. Porter Rhodora 54: 158. 1952. Nyctaginaceae. = *Mirabilis alipes* (Wats.) Pilz Uintah Co., 5 mi sw Vernal, Porter 5308, 1950 (RM!;CAS!).

*Hesperanthes albomarginata* Jones Zoe 2: 251. 1891. Liliaceae. = *Eremocrinum albomarginatum* (Jones) Jones Emery Co., Green River, Jones sn, 1890 (?).

*Heuchera rubescens* Torr. in Stansb. Explor. Great Salt Lake 388. 1852. Saxifragaceae. Syn: *H. versicolor* Greene; *H. versicolor* f. *pumila* Rosend., Butters, & Lakela Davis (?) Co., Great Salt Lake, Stansbury sn, 1850 (NY!).

*Heuchera utahensis* Rydb. N. Amer. Fl. 22: 114. 1905. Saxifragaceae. = *H. parifolia* Nutt. Salt Lake Co., City Creek Canyon, Jones 1458, 1880 (US!;CAS!;RM!;POM!;UT!;BRY!;UTC!).

*Heuchera versicolor* Greene f. *pumila* Rosend., Butters, & Lakela Minnesota Studies Pl. Sci. 2: 85. 1936. Saxifragaceae. = *H. rubescens* Torr. Utah? (?).

*Hieracium utahense* Gandg. Bull. Soc. Bot. France 65: 49. 1918. Asteraceae. = *H. gracile* Hook. Cache Co., Linford sn, 1897 (?).

*Holodiscus microphyllus* Rydb. Bull. Torrey Bot. Club 31: 559. 1904. Rosaceae. = *H. dumosus* (Nutt.) Heller Salt Lake Co., Alta, Jones 1142, 1879 (POM!;BRY!;NY!;UTC!).

*Homalobus canovirens* Rydb. Fl. Rocky Mts. ed. 2. 1126. 1922. Fabaceae. = *Astragalus coltonii* var. *moabensis* Jones Grand Co., La Sal Mts, Rydberg & Garrett 8536, 1913 (NY!).

*Homalobus humilis* Rydb. Bull. Torrey Bot. Club 34: 417. 1907. Fabaceae. = *Astragalus miser* var. *oblongifolius* (Rydb.) Cronq. Piute Co., n Bullion Creek, Rydberg & Carlton 7147, 1905 (NY!;US!;RM!;BRY!).

*Homalobus paucijugus* Rydb. Bull. Torrey Bot. Club 34: 418. 1907. Fabaceae. = *Astragalus miser* var. *tenuifolius* (Nutt.) Barneby Syn: *A. garrettii* Macbr. Salt Lake Co., Big Cottonwood Canyon, Garrett 1580, 1905 (NY!;US!;UT!).

*Hordeum pusillum* Nutt. var. *pubens* A.S. Hitchc. J. Washington Acad. Sci. 23: 453. 1933. Poaceae. = *H. pusillum* Nutt. Washington Co., LaVerkin, Jones 5196r, 1894 (POM!).

*Hosackia rigida* Benth. var. *nummularia* Jones Proc. Calif. Acad. II, 5: 633. 1895. Fabaceae. = *Lotus longibracteatus* Rydb. Washington Co., Rockville, Jones 5224, 1894 (US!;RM!).

*Houstonia saxicola* Eastw. Proc. Calif. Acad. II, 6: 291. 1896. Rubiaceae. = *H. rubra* Cav. San Juan Co., Butler Spring, Eastwood 33, 1895 (CAS!).

*Hymenopappus eriopodus* A. Nels. Bot. Gaz. 37: 274. 1904. Asteraceae. = *H. filifolius* var. *eriopodus* (A. Nels.) Turner Washington Co., Diamond Valley, Goodding 880, 1902 (RM!;US!;NY!).

*Hymenopappus niveus* Rydb. N. Amer. Fl. 34: 52. 1914. Asteraceae. = *H. filifolius* var. *tomentosus* (Rydb.) Turner Washington Co., Springdale, Jones 5261, 1894 (US!;NY!).

*Hymenopappus nudipes* Maguire Amer. Midl. Naturalist 37: 143. 1947. Asteraceae. = *H. filifolius* var. *alpestris* (Maguire) Shinnery Kane Co., 15 mi n Orderville, Maguire 18740, 1940 (NY!;US!).

*Hymenopappus nudipes* Maguire var. *alpestris* Maguire Amer. Midl. Naturalist 37: 144. 1947. Asteraceae. = *H. filifolius* var. *alpestris* (Maguire) Shinnery Iron Co., Cedar Breaks, Maguire 19023, 1940 (US!;NY!;UTC!).

*Hymenopappus pauciflorus* Johnst. Contr. Gray Herb. II, 68: 97. 1923. Asteraceae. = *H. filifolius* var. *pauciflorus* (Johnst.) Turner San Juan Co., near Bluff, Rydberg & Garrett 9951, 1911 (UT!;NY!).

*Hymenopappus tomentosus* Rydb. Bull. Torrey Bot. Club 27: 633. 1900. Asteraceae. = *H. filifolius* var. *tomentosus* (Rydb.) Turner Washington Co., St. George, Palmer 270, 1877 (NY!;ISC!;BRY!).

*Hymenoxyis lemmonii* (Greene) Cockerell ssp. *greenei* Cockerell Bull. Torrey Bot. Club 31: 479. 1904. Asteraceae. = *H. lemmonii* (Greene) Cockerell Washington (?) Co., Rock Creek, Palmer 261, 1877 (US!;NY!).

*Hymenoxyis richardsonii* (Hook.) Cockerell var. *utahensis* Cockerell Bull. Torrey Bot. Club 31: 477. 1904. Asteraceae. = *H. richardsonii* (Hook.) Cockerell Emery Co., Emery, Jones 5442, 1894 (US!;POM!).

*Ivesia utahensis* Wats. Proc. Amer. Acad. 10: 71. 1874. Rosaceae. Salt Lake Co., Bald Mt., Jones 1231, 1879 (US!;NY!;UTC!).

*Juncus canadensis* var. *kuntzei* Buch. Bot. Jahrb. 12: 272. 1890. Juncaceae. = *J. tweedyi* Rydb. Box Elder Co., near Corinne, Kuntze 3133, 1874 (NY!).

*Juncus jonesii* Rydb. Fl. Rocky Mts. 153, 1061. 1917. Juncaceae. = *J. regelii* Buch. Salt Lake Co., Alta, Jones 119, 1879 (NY!;POM!).

*Juncus tracyi* Rydb. Fl. Rocky Mts. 155, 1061. 1917. Juncaceae. = *J. ensifolius* Wikstr. Weber Co., Ogden, Tracy 389, 1887 (US!;NY!).

*Juncus utahensis* Martin Rhodora 40: 69. 1938. Juncaceae. = *J. ensifolius* var. *brunnescens* (Rydb.) Cronq. Summit (?) Co., Ashley National Forest, Nord & Sargent 1, 1927 (US!).

*Juniperus californica* var. *utahensis* Vasey Cat. Forest Trees U.S. 37. 1876. Cupressaceae. = *J. osteosperma* (Torr.) Little Wasatch Mts., Ward sn, 1875 (ISC!).

*Juniperus californica* var. *utahensis* Engelm. Trans. Acad. Sci. St. Louis 3: 588. 1878. Cupressaceae. = *J. osteosperma* (Torr.) Little Syn: *J. utahensis* (Engelm.) Lemmon Washington Co., St. George, Palmer? sn, 1877 (?).

*Kochia americana* Wats. var. *testita* Wats. Proc. Amer. Acad. 9: 93. 1874. Chenopodiaceae. = *K. americana* Wats. Tooele Co., "Tuilla Valley" Watson 991, 1869 (US!;NY!).

*Krynitzkia echinoides* Jones Proc. Calif. Acad. II, 5: 709. 1895. Boraginaceae. = *Cryptantha fulcocanescens* var. *echinoides* (Jones) Higgins Garfield (?) Co., Pahria Canyon, Jones 5297p, 1894 (US!;POM!).

*Krynitzkia glomerata* var. *acuta* Jones Zoe 2: 250. 1891. Boraginaceae. = *Cryptantha wetherillii* (Eastw.) Payson Grand Co., Cisco, Jones sn, 1890 (?).

*Krynitzkia glomerata* var. *virginensis* Jones Contr. W. Bot. 13: 5. 1910. Boraginaceae. = *Cryptantha virginensis* (Jones) Payson Washington Co., LaVerkin, Jones 5195a, 1894 (US!;RM!;POM!).

*Krynitzkia leucophaea* var. *alata* Jones Proc. Calif. Acad. II, 5: 710. 1895. Boraginaceae. = *Cryptantha confertiflora* (Greene) Payson Kane Co., Johnson, Jones 5289f, 1894 (POM!;US!;BRY!;NY!).

*Krynitzkia mensana* Jones Contr. W. Bot. 13: 4. 1910. Boraginaceae. = *Cryptantha mensana* (Jones) Payson Emery Co., Emery, Jones 5445p, 1894 (POM!;US!;RM!).

*Krynitzkia multicaulis* var. *setosa* Jones Contr. W. Bot. 13: 4. 1910. Boraginaceae. = *Cryptantha cinerea* (Greene) Cronq. Syn: *C. jamesii* var. *setosa* (Jones) Johnston, Millard Co., near Cove Fort, Jones sn, 1901 (POM!).

*Krynitzkia utahensis* Gray Syn Fl. N. Amer. ed.2. 2(1): 427. 1886. Boraginaceae. = *Cryptantha utahensis* (Gray) Greene Washington Co., St. George, Palmer 352, 1877 (US!).

*Krynitzkia watsonii* Gray Proc. Amer. Acad. 20: 271. 1885. Boraginaceae. = *Cryptantha watsonii* (Gray) Greene Wasatch Mts., Watson 858, 1869 (US!;NY!).

*Lan gloisia setosissima* (T. & G.) Greene var. *campyloclados* Brand Pflanzenreich 4. Fam. 250: 171. 1907. Polemoniaceae. = *L. setosissima* (T. & G.) Greene Washington Co., near St. George, Parry 190, 1874 (US!;ISC!).

*Laphamia palmeri* Gray Proc. Amer. Acad. 13: 372. 1878. Asteraceae. = *Perityle tenella* (Jones) Macbr. Washington Co., (Note: At Beaverdam in Ariz.) Palmer 199, 1877 (US!;NY!).

*Laphamia palmeri* Gray var. *tenella* Jones Proc. Calif. Acad. II, 5: 703. 1895. Asteraceae. = *Perityle tenella* (Jones) Macbr. Washington Co., Springdale, Jones 52491, 1894 (US!;POM!;NY!;BRY!).

*Laphamia stansburji* Gray Pl. Wright. 1: 101. 1852. Asteraceae. = *Perityle stansburji* (Gray) Macbr. Tooele Co., Stansbury Island, Stansbury sn, 1850 (NY!;BRY!).

*Lappula collina* Greene Pittonia 4: 96. 1899. Boraginaceae. = *L. occidentalis* (Wats.) Greene sens. lat. Piute Co., Kingston, Jones sn, 1894 (?).

*Lathyrus brachycalyx* Rydb. var. *brachycalyx* Bull. Torrey Bot. Club 34: 425. 1907. Fabaceae. Salt Lake Co., City Creek Canyon, Leonard 101, 1883 (NY!).

*Lathyrus coriaceus* White Bull. Torrey Bot. Club 21: 452. 1894. Fabaceae. = *L. lanzwertii* var. *lanzwertii* Wasatch Mts., Watson 297, 1869 (US!).

*Lathyrus utahensis* Jones Proc. Calif. Acad. II, 5: 678. 1895. Fabaceae. = *L. pauciflorus* var. *utahensis* (Jones) Peck Sevier Co., Irelands Ranch, Jones 54411, 1894 (US!;NY!).

*Lathyrus zionis* C.L. Hitchc. Univ. Washington Publ. Biol. 15: 36. 1952. Fabaceae. = *L. brachycalyx* var. *zionis* (C.L. Hitchc.) Welsh Kane Co., 10 mi e Zion N.P., Hitchcock 19013, 1949 (CAS!;RM!;UTC!;NY!).

*Lepidium brachybotryum* Rydb. Bull. Torrey Bot. Club 34: 427. 1907. Brassicaceae. = *L. montanum* var. *montanum* Juab Co., Juab, Gooding 1075, 1902 (NY!;US!;RM!).

*Lepidium georginum* Rydb. Bull. Torrey Bot. Club 30: 253. 1903. Brassicaceae. = *L. lasiocarpum* var. *georginum* (Rydb.) C.L. Hitchc. Washington Co., Southern Utah, Parry 19, 1874 (NY!;ISC!).

*Lepidium jonesii* Rydb. Bull. Torrey Bot. Club 29: 233. 1902. Brassicaceae. = *L. montanum* var. *jonesii* (Rydb.) C.L. Hitchc. Washington Co., St. George, Jones 1636, 1880 (US!;CAS!;RM!;POM!;NY!).

*Lepidium montanum* Nutt. in T. & G. var. *alpinum* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 29. 1871. Brassicaceae. Salt Lake Co., Cottonwood Canyon, Watson 122, 1869 (US!;NY!).

*Lepidium montanum* Nutt. in T. & G. var. *demissum* C.L. Hitchc. Madroño 10: 157. 1950. Brassicaceae. = *L. barnebyanum* Reveal Duchesne Co., sw Duchesne, Ripley & Barneby 8699, 1947 (US!;CAS!;NY!).

*Lepidium montanum* Nutt. in T. & G. var. *neeseeae* Welsh & Reveal Great Basin Naturalist 34: 334. 1977. Brassicaceae. Garfield Co., Hells Backbone, Neese & White 3332, 1977 (BRY!;NY!;UT!).

*Lepidium montanum* Nutt. in T. & G. var. *stellae* Welsh & Reveal Great Basin Naturalist 34: 334. 1977. Brassicaceae. Kane Co., se Cannonville, Welsh & Welsh 12841, 1975 (BRY!).

*Lepidium ostler* Welsh & Goodrich Great Basin Naturalist 40: 80. 1980. Brassicaceae. Beaver Co., Frisco, Ostler & Anderson 1258, 1978 (BRY!).

*Lepidium utahense* Jones Zoe 4: 266. 1893. Brassicaceae. = *L. integrifolium* Nutt. Beaver Co., Milford, Jones 1821, 1880 (POM!;NY!;BRY!;UT!;UTC!;ISC!).

*Lepidium zionis* A. Nels. Bot. Gaz. 42: 50. 1906. Brassicaceae. = *L. integrifolium* Nutt. Sevier Co., Richfield, Jones 5411, 1894 (RM!;BRY!;POM!;NY!).

*Leptodactylon brevifolium* Rydb. Bull. Torrey Bot. Club. 40: 474. 1913. Polemoniaceae. = *L. pungens* (Torr.) Nutt. Iron Co., Juniper Range, Purpus 6306, 1898 (US!).

*Leptotaenia eatonii* Coult. & Rose Rev. N. Amer. Umbell. 52. 1888. Apiaceae. = *Lomatium dissectum* var. *eatonii* (Coult. & Rose) Cronq. Utah, Eaton 147, 1869 (?).

*Lesquerella garrettii* Payson Ann. Missouri Bot. Gard. 8: 213. 1921. Brassicaceae. Salt Lake Co., Big Cottonwood Canyon, Garrett 1344, 1908 (MO!;RM!).

*Lesquerella gordonii* var. *sessilis* Wats. Proc. Amer. Acad. 23: 253. 1888. Brassicaceae. = *L. tenella* A. Nels. Washington Co., near St. George, Parry sn, 1874 (GH).

*Lesquerella hemiphysaria* Maguire var. *hemiphysaria* Amer. Midl. Naturalist 27: 456. 1942. Brassicaceae. Sanpete Co., Wasatch Plateau, Maguire 20053, 1940 (UTC!).

*Lesquerella hemiphysaria* Maguire var. *lucens* Welsh & Reveal Great Basin Naturalist 37: 338. 1977. Brassicaceae. Carbon Co., Range Creek, Welsh & Taylor 15139, 1977 (BRY!).

*Lesquerella hitchcockii* ssp. *tumulosa* Barneby Leaf. W. Bot. 10: 313. 1966. Brassicaceae. = *L. tumulosa* (Barneby) Reveal Kane Co., se Cannonville, Barneby 14424, 1966 (US!;BRY!;UTC!;NY!).

*Lesquerella multiceps* Maguire Amer. Midl. Naturalist 27: 465. 1942. Brassicaceae. Cache Co., Tony Grove Lake, Maguire 16030, 1938 (UTC!;RM!).

*Lesquerella rubicundula* Rollins Contr. Dudley Herb. 3: 178. 1941. Brassicaceae. Garfield Co., Red Canyon, Eggleston 8198, 1912 (US!).

*Lesquerella subumbellata* Rollins Rhodora 57: 255. 1955. Brassicaceae. Uintah Co., n Vernal, Rollins 175, 1937 (US!;RM!;NY!;UTC!).

*Lesquerella utahensis* Rydb. Bull. Torrey Bot. Club 30: 252. 1903. Brassicaceae. Utah Co., American Fork Canyon, Jones 1354, 1880 (NY!;US!;CAS!).

*Lesquerella wardii* Wats. Proc. Amer. Acad. 23: 252. 1888. Brassicaceae. Garfield Co., Aquarius Plateau, Ward 589, 1875 (GH;US!;RM!).

- Ligusticum brevilibum* Rydb. Fl. Rocky Mts. 613, 1064. 1917. Apiaceae. = *L. porteri* Coult. & Rose Garfield Co., Aquarius Plateau, Rydberg & Carlton 7473, 1905 (NY!;US!).
- Ligusticum filicinum* Wats. Proc. Amer. Acad. 11: 140. 1876. Apiaceae. Summit (?) Co., Uinta Mts., Watson 454, 1869 (US!;NY!).
- Linnaia utahensis* Rydb. Bull. Torrey Bot. Club 39: 314. 1912. Portulacaceae. = *Montia perfoliata* (Donn) Howell Washington Co., St. George, Pahner 56, 1877 (NY!).
- Linosyris serrulata* Torr. in Stansb. Explor. Great Salt Lake 389. 1852. Asteraceae. = *Chrysothamnus viscidiflorus* var. *viscidiflorus* Salt Lake Co., Salt Lake Valley, Stansbury sn, 1850 (NY!).
- Linum aristatum* Engelm. in Wisliz. var. *subteres* Trel. in Eastwood Proc. Calif. Acad. II, 6: 285. 1896. Linaceae. = *L. subteres* (Trel.) Winkler San Juan Co., Willow Creek, Eastwood sn, 1895 (?).
- Linum kingii* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 49. 1871. Linaceae. Summit Co., Uintas, Watson 203, 1869 (US!).
- Linum kingii* Wats. var. *pinetorum* Jones Proc. Calif. Acad. II, 5: 628. 1895. Linaceae. = *L. kingii* Wats. Garfield Co., canyon above Tropic, Jones 5306, 1894 (US!;POM!;NY!;BRY!).
- Lomatium jonesii* Coult. & Rose Contr. U.S. Natl. Herb. 7: 233. 1900. Apiaceae. = *L. foeniculaceum* var. *macdougallii* (Coult. & Rose) Cronq. Sevier Co., Irelands Ranch, Jones 5435, 1894 (US!).
- Lomatium junceum* Barneby & Holmgren Brittonia 31: 96. 1979. Apiaceae. Emery Co., San Rafael Swell, Holmgren et al. 8778, 1978 (NY!;BRY!;UTC!).
- Lonicera utahensis* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 133. 1871. Caprifoliaceae. Salt Lake Co., Cottonwood Canyon, Watson 477, 1869 (US!;NY!).
- Lotus longibracteatus* Rydb. Bull. Torrey Bot. Club 30: 254. 1903. Fabaceae. Syn: *L. oroboides* var. *nummularius* (Jones) Isely Washington Co., "South Utah" ("Mokaik Pass"), Palmer 94, 1877 (US!;NY!;BRY!).
- Lotus utahensis* Ottery Brittonia 5: 108. 1944. Fabaceae. Kane Co., w Carmel, Ferguson & Ottery 5613 (?).
- Lupinus aegra-ovium* C.P. Sm. Sp. Lupinorum 694. 1951. Fabaceae. = *L. sericeus* var. *sericeus* sens. lat. Sevier Co., Salina Experiment Station, Huffman 49-9, 1949 (CAS!).
- Lupinus aridus* var. *utahensis* Wats. Proc. Amer. Acad. 8: 534. 1873. Fabaceae. = *L. caespitosus* Nutt.; Syn: *L. watsonii* Heller Summit Co., Parleys Park, Watson 234, 1869 (US!).
- Lupinus barbiger* Wats. Proc. Amer. Acad. 8: 528. 1873. Fabaceae. = *L. sericeus* var. *barbiger* (Wats.) Welsh Kane Co., S. Utah, Siler sn, 1872? (GH).
- Lupinus eatonanus* C.P. Sm. Sp. Lupinorum 671. 1949. Fabaceae. = *L. leucophyllus* Dougl. Wasatch Co., Hailstone, Smith 3995, 1925 (CAS!).
- Lupinus garrettianus* C.P. Sm. Sp. Lupinorum 672. 1949. Fabaceae. = *L. argenteus* var. *argenteus* Duchesne Co., 1 mi w Duchesne, Garrett 8303, 1940 (UT!).
- Lupinus holosericeus* var. *utahensis* Wats. Proc. Amer. Acad. 8: 533. 1873. Fabaceae. = *L. caudatus* var. *caudatus* Salt Lake Co.?, Watson sn?, 1869 (US!).
- Lupinus huffmanii* C.P. Sm. Sp. Lupinorum 693. 1951. Fabaceae. = *L. sericeus* var. *sericeus* sens. lat. Sevier Co., Salina Experiment Station, Huffman 47-7A, 1949 (CAS!).
- Lupinus jonesii* Rydb. Bull. Torrey Bot. Club 30: 256. 1903. Fabaceae. Syn: *L. leucanthus* Rydb. Washington Co., Silver Reef, Jones 5143, 1894 (US!;RM!;BRY!;NY!).
- Lupinus laronsonus* C.P. Sm. Sp. Lupinorum 696. 1951. Fabaceae. = *L. sericeus* var. *sericeus* sens. lat. Sevier Co., inter Browns Hole & Hoodoo, Larson sn, 1934 (CAS!).
- Lupinus leucanthus* Rydb. Bull. Torrey Bot. Club 30: 259. 1903. Fabaceae. = *L. jonesii* Rydb. Washington Co., Springdale, Jones 5249e, 1894 (US!;RM!;BRY!;POM!;NY!).
- Lupinus leucophyllus* Dougl. ex Lindl. var. *lupinus* Rydb. Bull. Torrey Bot. Club 40: 44. 1913. Fabaceae. Syn: *L. utahensis* Moldenke = *L. caudatus* var. *caudatus* San Juan Co., Bears Ears, Rydberg & Garrett 9363, 1911 (NY!).
- Lupinus maculatus* Rydb. Bull. Torrey Bot. Club 30: 257. 1903. Fabaceae. Utah Co., Pleasant Valley (P.V.) Jct., Jones sn, 1883 (NY!;US!;POM!;UTC!).
- Lupinus marianus* Rydb. Bull. Torrey Bot. Club 34: 41. 1907. Fabaceae. = *L. sericeus* var. *marianus* (Rydb.) Welsh Piute Co., Bullion Creek, Rydberg & Carlton 7024, 1905 (US!;RM!;NY!).
- Lupinus prunophilus* Jones Contr. W. Bot. 13: 7. 1910. Fabaceae. Juab Co., Robinson, Jones sn, 1909 (CAS!;POM!;BRY!;NY!).
- Lupinus pulcher* Eastw. Leaf. W. Bot. 3: 173. 1942. Fabaceae. = *L. hillii* Greene Iron Co., 18 mi s Cedar City, Barkley & Reed 4069, 1939 (CAS!).
- Lupinus puroviridis* C.P. Sm. Sp. Lupinorum 694. 1951. Fabaceae. = *L. sericeus* var. *sericeus* sens. lat. Sevier Co., Salina Experiment Station, Huffman 49-7B, 1949 (CAS!).
- Lupinus quercus-jugi* C.P. Sm. Sp. Lupinorum 696. 1951. Fabaceae. = *L. sericeus* var. *sericeus* sens. lat. Sevier Co., Browns Hole, Clawson C241, 1935 (CAS!).
- Lupinus rickeri* C.P. Sm. Sp. Lupinorum 695. 1951. Fabaceae. = *L. sericeus* var. *sericeus* sens. lat. Sevier Co., Salina Experiment Station, Ricker 14080, 1917 (CAS!).
- Lupinus rubens* Rydb. Bull. Torrey Bot. Club 34: 45. 1907. Fabaceae. = *L. pusillus* var. *rubens* (Rydb.) Welsh Washington Co., St. George, Parry 41, 1874 (NY!;ISC!).
- Lupinus salinensis* C.P. Sm. Sp. Lupinorum 695. 1951. Fabaceae. = *L. sericeus* var. *sericeus* sens. lat. Sevier Co., Salina Experiment Station, Clawson C.202, 1935 (CAS!).
- Lupinus sileri* Wats. Proc. Amer. Acad. 10: 345. 1875. Fabaceae. = *L. kingii* Wats. Southern Utah, Siler sn (GH).
- Lupinus spatulatus* Rydb. Bull. Torrey Bot. Club 29: 244. 1902. Fabaceae. = *L. argenteus* var. *boreus* (C.P. Sm.) Welsh Wasatch Mts., Watson 225, 1869 (NY!).
- Lupinus tooeensis* C.P. Sm. Sp. Lupinorum 640. 1948. Fabaceae. = *L. prunophilus* Jones Tooele Co., Deep Creek Mts., Cottam 7203, 1937 (UT!).
- Lupinus watsonii* Heller Muhlenbergia 1: 114. 1905. Fabaceae. = *L. caespitosus* Nutt. Summit Co., Parleys Park, Watson 234, 1869 (US!).



*Lychnis kingii* Wats. Proc. Amer. Acad. 12: 247. 1877. Caryophyllaceae. Summit Co., head Bear River, Watson 153, 1869 (US!;NY!).

*Lygodesmia entrada* Welsh & Goodrich Great Basin Naturalist 40: 83. 1980. Asteraceae. Grand Co., Tusher Canyon, Welsh & Welsh 16725, 1978 (BRY!;UT!;NY!).

*Lygodesmia grandiflora* (Nutt.) T. & G. var. *stricta* Maguire Amer. Midl. Naturalist 37: 145. 1947. Asteraceae. Carbon Co., 1 mi s Price, Maguire 18417, 1940 (NY!;US!;UTC!).

*Lygodesmia juncea* (Pursh) D. Don var. *dianthopsis* D.C. Eaton Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 200. 1871. Asteraceae. = *L. dianthopsis* (D.C. Eaton) Tomb Davis (?) Co., Great Salt Lake Islands, Watson 707, 1869 (US!).

*Machaeranthera commixta* Greene Pittonia 4: 71. 1899. Asteraceae. Syn: *M. leptophylla* Rydb.? Garfield Co., Bromide Pass, Jones 5695v, 1894 (US!).

*Machaeranthera glabriuscula* (Nutt.) Cronq. & Keck var. *confertiflora* Cronq. Leaf. W. Bot. 10: 11. 1963. Asteraceae. = *Xylorhiza confertiflora* (Cronq.) T.J. Watson Garfield Co., 11 mi ne Henrieville, Cronquist 9164, 1961 (NY!;UTC!).

*Machaeranthera kingii* (D.C. Eaton) Cronq. & Keck var. *barnebyana* Welsh & Goodrich in Welsh Brittonia 33: 299. 1981. Asteraceae. Millard Co., Canyon Mts., Goodrich 14929, 1980 (BRY!;GH!;NY!;US!;RM!;UC!;USFS!;UT!;UTC!).

*Machaeranthera latifolia* A. Nels. Proc. Biol. Soc. Washington 20: 38. 1907. Asteraceae. Syn: *M. rubricaulis* Rydb.; *Aster rubrotinctus* Blake = *M. bigelovii* Gray ? Salt Lake Co., Big Cottonwood Canyon, Garrett 1933, 1906 (US!;RM!;UT!).

*Machaeranthera leptophylla* Rydb. Bull. Torrey Bot. Club 37: 147. 1910. Asteraceae. = *M. commixta* Greene? Cache Co., Logan, Rydberg sn, 1895 (NY!;BRY!).

*Machaeranthera paniculata* A. Nels. Proc. Biol. Soc. Washington 20: 38. 1907. Asteraceae. = *M. bigelovii* Gray ? Salt Lake Co., Parleys Canyon, Garrett 2083, 1906 (US!;RM!;UT!).

*Machaeranthera pulverulenta* var. *vacans* A. Nels. Bot. Gaz. 56: 70. 1913. Asteraceae. = *M. canescens* (Pursh) Gray? San Juan Co., Walker 360, 1912 (RM!;NY!).

*Machaeranthera tortifolia* (T. & G.) Cronq. & Keck var. *imberbis* Cronq. Leaf. W. Bot. 10: 12. 1963. Asteraceae. = *Xylorhiza tortifolia* var. *imberbis* (Cronq.) T.J. Watson Grand Co., w Moab, Cronquist 8994, 1961 (NY!;UTC!).

*Macronema obovatum* Rydb. Bull. Torrey Bot. Club 27: 618. 1900. Asteraceae. = *Haplopappus rydbergii* Blake Salt Lake Co., City Creek Canyon, Jones 1081, 1895 (US!;CAS!;RM!;POM!;NY!;UTC!).

*Madronella oblongifolia* Rydb. Bull. Torrey Bot. Club 36: 686. 1909. Lamiaceae. = *Monardella odoratissima* Benth. Juab Co., Mt. Nebo, Rydberg & Carlton 7706, 1905 (NY!;US!;RM!).

*Madronella sessilifolia* Rydb. Bull. Torrey Bot. Club 36: 685. 1909. Lamiaceae. = *Monardella odoratissima* Benth. Washington Co., St. George, Palmer 393, 1877 (NY!).

*Mammillaria chlorantha* Engelm. in Wheeler Rep. U.S. Geogr. Surv. W. 100th Meridian 6: 127. 1878. Cactaceae. = *Coryphantha vivipara* var. *deserti* (Engelm.) W.T. Marshall Washington Co., e St. George, Parry sn, 1874 (ISC!;BRY!).

*Mentzelia albicaulis* Dougl. in Hook. var. *integrifolia* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 114. 1871. Loasaceae. = *M. dispersa* Wats. Davis Co., Antelope Island, Watson 430, 1869 (US!;NY!).

*Mentzelia argillosa* Darlington Ann. Missouri Bot. Gard. 21: 153. 1934. Loasaceae. Sevier Co., Vermillion, Jones 5631, 1894 (MO;POM!;US!).

*Mentzelia multiflora* (Nutt.) Gray var. *integra* Jones Proc. Calif. Acad. Sci II, 5: 689. 1895. Loasaceae. = *M. integra* (Jones) Tidestr. Washington Co., Rockville, Jones 6082C, 1894 (US!).

*Mentzelia pterosperma* Eastw. Proc. Calif. Acad. II, 6: 290. 1896. Loasaceae. San Juan Co., Willow Creek, Eastwood 31, 1895 (CAS!).

*Mertensia brevistyla* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 239. 1871. Boraginaceae. Summit (?) Co., Wasatch Mts., Watson 845, 1869 (NY!).

*Mertensia leonardii* Rydb. Bull. Torrey Bot. Club 36: 681. 1909. Boraginaceae. = *M. arizonica* Greene var. *leonardii* (Rydb.) Johnst. Salt Lake Co., Mill Creek Canyon, Leonard sn, 1884 (NY!).

*Mertensia paniculata* var. *nivalis* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 239. 1871. Boraginaceae. = *M. viridis* A. Nels. var. *cana* (Rydb.) L.O. Williams Summit Co., Bear River Canon, Watson 844, 1869 (CAS!;US!;NY!).

*Mertensia praecox* Smiley in Macbr. Contr. Gray Herb. II, 48: 10. 1916. Boraginaceae. = *M. oblongifolia* var. *nevadensis* (A. Nels.) L.O. Williams Cache Co., Logan Canyon, Smith 2160, 1910 (UTC!).

*Mertensia sampsonii* Tidestr. Proc. Biol. Soc. Washington 26: 122. 1913. Boraginaceae. = *M. arizonica* var. *leonardii* (Rydb.) Johnst. Sanpete Co., e of Ephraim, Sampson 677, (US!).

*Mertensia toyabensis* var. *subnuda* Macbr. Contr. Gray Herb. II, 48: 7. 1916. Boraginaceae. = *M. arizona* var. *subnuda* (Macbr.) L.O. Williams Wayne Co. (?), Fish Lake Mountain, Ward 329, 1875 (GH!).

*Micropuntia barkleyana* Daston Amer. Midl. Naturalist 36: 662. 1946. Cactaceae. = *Opuntia pulchella* Engelm. Millard Co., Desert Experimental Range, Marsh sn, 1945 (F?).

*Micropuntia brachyhopalica* Daston Amer. Midl. Naturalist 36: 661. 1946. Cactaceae. = *Opuntia pulchella* Engelm. Millard Co., Desert Experimental Range, Marsh sn, 1945 (F?).

*Micropuntia spectatissima* Daston Amer. Midl. Naturalist 36: 661. 1946. Cactaceae. = *Opuntia pulchella* Engelm. Millard Co., Desert Experimental Range, Marsh sn, 1946 (F?).

*Mimulus eastwoodiae* Rydb. Bull. Torrey Bot. Club 40: 483. 1913. Scrophulariaceae. San Juan Co., San Juan River, near Bluff, Rydberg 9883, 1911 (NY!;US!;RM!;UT!).

*Mimulus glabratus* H.B.K. ssp. *utahensis* Pennell Acad. Nat. Sci. Philadelpha Monog. 1: 123. 1935. Scrophulariaceae. = *M. glabratus* H.B.K. Millard Co., Preuss Lake, Tidestrom 11180, 1919 (PH).

*Mimulus parryi* Gray Proc. Amer. Acad. 11: 97. 1876. Scrophulariaceae. Washington Co., near St. George, Parry 147, 1874 (NY!;US!;ISC!;NDG!).

*Mitribilis glutinosa* A. Nels. Proc. Biol. Soc. Washington 17: 92. 1904. Nyctaginaceae. = *M. bigelovii* Gray var. *retrorsa* (Heller) Munz Washington Co., near St. George, Goodding 778, 1902 (RM!).

*Mitella stenopetalata* Piper Erythraea 7: 161. 1899. Saxifragaceae. = *M. stauropetalata* Piper Salt Lake (?) Co., Wasatch Mts., Watson 365, 1869 (?).

*Muhlenbergia curtifolia* Scribn. Bull. Torrey Bot. Club 38: 328. 1911. Poaceae. = *M. thurberi* Rydb. Kane Co., inter Kanab & Carmel, Jones 6077j, 1894 (US!).

*Najas flexilis* ssp. *caespitosus* Maguire in Maguire & Jensen Rhodora 44: 7. 1942. Najadaceae. = *N. caespitosus* (Maguire) Reveal Sevier Co., Pelican Point, Fish Lake, Maguire 19888, 1940 (UTC!;BRY!).

*Nasturtium obtusum* Nutt. var. *alpinum* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 15. 1871. Brassicaceae. = *Rorippa curvipes* var. *alpina* (Wats.) Stuckey Summit Co., head of Bear River Canyon, Uinta Mts., Watson 60, 1869 (US!).

*Navarretia setosissima* T. & G. in Ives Rep. Colorado Riv. W. 4: 22. 1860. Polemoniaceae. = *Langloisia setosissima* (T. & G.) Greene Washington Co., Virgin River, Fremont 414, (NY!).

*Nemophila breviflora* Gray Proc. Amer. Acad. 10: 315. 1875. Hydrophyllaceae. Summit Co., Parleys Park, Watson 169, 1869 (NY!;US!).

*Notholaena parryi* D.C. Eaton Amer. Naturalist 9: 351. 1875. Polypodiaceae. Washington Co., St. George, Parry 263, 1874 (US!;ISC!;BRY!).

*Nuttallia lobata* Rydb. Bull. Torrey Bot. Club 40: 61. 1913. Loasaceae. = *Mentzelia integra* (Jones) Tidestr. Washington Co., near St. George, Palmer 172, 1877 (NY!).

*Oenothera acutissima* W.L. Wagner Systematic Botany 6: 153. 1981. Onagraceae. Daggett Co., Greendale Campground, Neese & Peterson 5428, 1978 (BRY!).

*Oenothera albicaulis* Pursh var. *decumbens* Wats. ex Parry Amer. Naturalist 9: 270. 1875. Onagraceae. = *O. deltoides* ssp. *ambigua* (Wats.) W. Klein Washington Co., near St. George, Parry 63, 1874 (GH?).

*Oenothera alyssoides* H. & A. var. *minutiflora* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 111. 1871. Onagraceae. = *Camissonia minor* (A. Nels.) Raven Tooele Co., Stansbury Island, Watson 421, 1869 (US!).

*Oenothera alyssoides* Pursh var. *villosa* Wats. Proc. Amer. Acad. 8: 591. 1873. Onagraceae. = *Camissonia boothii* ssp. *alyssoides* (H. & A.) Raven Salt Lake (?) Co., near Salt Lake, Stansbury sn, 1850 (NY!).

*Oenothera ambigua* Wats. Proc. Amer. Acad. 14: 293. 1879. Onagraceae. = *O. deltoides* var. *ambigua* (Wats.) Munz Washington Co., near St. George, Palmer 162, 1877 (US!;ISC!).

*Oenothera brevipres* var. *parciflora* Wats. in Parry Amer. Naturalist 9: 271. 1875. Onagraceae. = *Camissonia multijuga* (Wats.) Raven Washington Co., near St. George, Parry 74, 1874 (GH;MO;F).

*Oenothera caespitosa* Nutt. var. *jonesii* Munz Amer. J. Bot. 18: 731. 1931. Onagraceae. Syn: *O. caespitosa* ssp. *jonesii* (Munz) Munz Tooele Co., Fish Springs, Jones sn, 1891 (POM!).

*Oenothera californica* ssp. *avita* W. Klein Aliso 5: 179. 1962. Onagraceae. = *O. avita* (W. Klein) W. Klein Washington Co., 0.5 ne of Leeds, Klein 1049, 1959 (RSA).

*Oenothera gauraeflora* var. *hitchcockii* H. Lev. Monogr. Oenothera 226. 1905. Onagraceae. = *Camissonia boothii* ssp. *alyssoides* (H. & A.) Raven Simpsons Park, without coll., 1859 (MO).

*Oenothera hookeri* T. & G. var. *angustifolia* Gates Mut. Factors Evol. 10: 30. 1915. Onagraceae. Utah Co., Asphalt (s Thistle), Jones 5624, 1894 (US!;NY!).

*Oenothera johnsonii* Parry Amer. Nat. 9: 270. 1875. Onagraceae. = *O. primiveris* Gray Washington Co., near St. George, Parry 64, 1874 (ISC!).

*Oenothera longissima* Rydb. Bull. Torrey Bot. Club 40: 65. 1913. Onagraceae. San Juan Co., Natural Bridges Rydberg & Garrett 9410, 1911 (NY!;US!).

*Oenothera multijuga* Wats. Amer. Naturalist 7: 300. 1873. Onagraceae. = *Camissonia multijuga* (Wats.) Raven Kane Co., near Kanab, Thompson sn, 1872 (NY?).

*Oenothera multijuga* Wats. var. *orientalis* Munz Amer. J. Bot. 15: 232. 1928. Onagraceae. = *Camissonia walkeri* ssp. *walkeri* Grand Co., Moab, Jones sn, 1913 (POM!).

*Oenothera parryi* Wats. ex Parry Amer. Naturalist 9: 270. 1875. Onagraceae. = *Camissonia parryi* (Wats.) Raven Washington Co., near St. George, Parry 72, 1874 (US!;NY!;BRY!;ISC!;NDG!).

*Oenothera scapoidea* Nutt. in T. & G. ssp. *utahensis* Raven Univ. Calif. Publ. Bot. 34: 96. 1962. Onagraceae. = *Camissonia scapoidea* ssp. *utahensis* (Raven) Raven Salt Lake Co., Black Rock, Watson 414, 1869 (US!).

*Oenothera tenuissima* Jones Proc. Calif. Acad. II, 5: 683. 1895. Onagraceae. = *Camissonia parryi* (Wats.) Raven Washington Co., Rockville, Jones 6083, 1894 (POM!;US!;RM!;NY!).

*Oenothera triloba* var. *ecristata* Jones Proc. Calif. Acad. II, 5: 681. 1895. Onagraceae. = *O. flava* (A. Nels.) Garrett Garfield Co., Panguitch Lake, Jones 60155, 1894 (POM!).

*Opuntia barbata* M. Brandegee ex J.A. Purpus Monats. Kakteenk. 10: 97. 1900. Cactaceae. = *O. polyacantha* (?) Haw. San Juan (?) Co., La Sal Mts., Purpus sn, 1897 (?).

*Opuntia barbata* M. Brandegee ex J.A. Purpus var. *gracillima* M. Brandegee ex J.A. Purpus Monats. Kakteenk. 10: 110, 120. 1900. Cactaceae. = *O. polyacantha* (?) Haw. San Juan (?) Co., La Sal Mts., Purpus sn, 1897 (?).

*Opuntia basilaris* Engelm. & Bigel. var. *woodburyi* Earl Sahuaroland Bull. 34: 15. 1980. Cactaceae. Washington Co., Fort Pierce Wash, Woodbury 2060a, 1977 (BRY!).

*Opuntia palmeri* Engelm. Contr. U.S. Natl. Herb. 3: 423. 1896. Cactaceae. = ? *O. phaeacantha* var. *discata* (Griffiths) Benson & Walkington Washington Co., near St. George, Palmer sn, 1877 (MO).

*Opuntia rubrifolia* Engelm. Contr. U.S. Natl. Herb. 3: 424. 1896. Cactaceae. = *O. erinacea* var. *ursina* Parish Washington Co., near St. George, Palmer 3, 1877 (MO).

*Opuntia utahensis* J.A. Purpus Monats. Kakteenk. 19: 133. 1909. Cactaceae. = *O. macrorhiza* Engelm. San Juan (?) Co., La Sal Mts., Purpus sn, 1897 (US!).

*Oreocarya breviflora* Osterh. in Payson Univ. Wyoming Publ. Bot. 1: 169. 1926. Boraginaceae. = *Cryptantha breviflora* (Osterh.) Payson Uintah Co., n Jensen, Oshertout 6414, 1925 (RM!;BRY!).

*Oreocarya commixta* Macbr. Contr. Gray Herb. II, 48: 33. 1916. Boraginaceae. = *Cryptantha humilis* var. *commixta* (Macbr.) Higgins Juab Co., Juab, Goodding 1074, 1902 (GH;RM!).

*Oreocarya disticha* Eastw. Bull. Torrey Bot. Club 30: 258. 1903. Boraginaceae. Syn: *Cryptantha jamesii* var. *disticha* (Eastw.) Payson = *C. cinerea* (Greene) Cronq. San Juan Co., Bartons range, Eastwood sn, 1895 (CAS!;NY!).

*Oreocarya dolosa* Macbr. Contr. Gray Herb. II, 48: 32. 1916. Boraginaceae. = *Cryptantha humilis* var. *shantzii* (Tidestr.) Higgins Cache Co., Logan, Smith 1605, 1909 (RM!).

*Oreocarya jonesiana* Payson Univ. Wyoming Publ. Bot. 1: 168. 1926. Boraginaceae. = *Cryptantha jonesiana* (Payson) Payson Emery Co., San Rafael Swell, Jones sn, 1914 (RM!;POM!;BRY!).

*Oreocarya pustulosa* Rydb. Bull. Torrey Bot. Club 40: 480. 1913. Boraginaceae. = *Cryptantha pustulosa* (Rydb.) Payson Syn: *C. jamesii* var. *pustulosa* (Rydb.) Harrington San Juan Co., Elk Mts., Rydberg & Garrett 9320, 1911 (NY!).

*Oreocarya rugulosa* Payson Univ. Wyoming Publ. Bot. 1: 166. 1926. Boraginaceae. = *Cryptantha rugulosa* (Payson) Payson Tooele Co., Fish Springs, Jones sn, 1891 (GH;RM!;POM!).

*Oreocarya shantzii* Tidestr. Proc. Biol. Soc. Washington 26: 122. 1913. Boraginaceae. = *Cryptantha humilis* var. *shantzii* (Tidestr.) Higgins Salt Lake Co., s Great Salt Lake, Kearney & Shantz 3098, 1912 (US!).

*Oreocarya tenuis* Eastw. Bull. Torrey Bot. Club 30: 244. 1903. Boraginaceae. = *Cryptantha tenuis* (Eastw.) Payson Grand Co., Courthouse Wash, Eastwood sn, 1892 (CAS!;RM!;NY!).

*Oreocarya torva* A. Nels. Amer. J. Bot. 23: 269. 1936. Boraginaceae. = *Cryptantha flava* (A. Nels.) Payson Carbon Co., Price, Flowers 6395, 1933 (UT!).

*Oreocarya wetherillii* Eastw. Bull. Torrey Bot. Club 30: 242. 1903. Boraginaceae. = *Cryptantha wetherillii* (Eastw.) Payson Grand Co., Courthouse Wash, Eastwood sn, 1892 (CAS!;RM!;NY!).

*Oreocarya williamsii* A. Nels. Amer. J. Bot. 21: 578. 1934. Boraginaceae. = *Cryptantha stricta* (Osterh.) Payson Daggett Co., Flaming Gorge, Williams 489, 1932 (RM!;NY!).

*Orogenia linearifolia* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 120. 1871. Apiaceae. Summit Co., Wasatch Mts., north of Parleys Park, Watson 440, 1869 (US!;NY!).

*Oxybaphus angustifolia* var. *viscidus* Eastw. Proc. Calif. Acad. II, 6: 313. 1896. Nyctaginaceae. = *O. linearis* (Pursh) Robins. San Juan Co., Butler Spring, Eastwood 101, 1895 (CAS!).

*Oxybaphus glaber* Wats. Amer. Naturalist 7: 301. 1873. Nyctaginaceae. Kane Co., Kanab, Thompson sn, 1872 (US!).

*Oxytropis jonesii* Barneby Proc. Calif. Acad. IV, 27: 215. 1952. Fabaceae. Garfield Co., Red Canyon, Ripley & Barneby 8550, 1947 (CAS!).

*Oxytropis oreophila* Gray var. *juniperina* Welsh Great Basin Naturalist 38: 339. 1978. Fabaceae. Wayne Co., 1 mi e Bicknell, Welsh & Moore 13828, 1976 (BRY!;UT!;ISC!).

*Pachylophus crinitis* Rydb. Fl. Rocky Mts. 598, 1064. 1917. Onagraceae. = *Oenothera caespitosa* var. *crinita* (Rydb.) Munz Wayne Co., Rabbit Valley, Ward 526, 1875 (US!).

*Paronychia pulvinata* Gray var. *longiaristata* Chaudri Revis. Paronychia 194. 1968. Caryophyllaceae. Duchesne Co., Mt. Emmons, Hermann 5041, 1933 (BRY!).

*Parrya platycarpa* Rydb. Bull. Torrey Bot. Club 39: 326. 1912. Brassicaceae. = *P. rydbergii* Botsch. Summit (?) Co., Uinta Mts, Watson 54, 1869 (US!;NY!).

*Parthenium alpinum* (Nutt.) T. & G. var. *ligulatum* Jones Contr. W. Bot. 13: 16. 1910. Asteraceae. Syn: *Bolophyta ligulata* (Jones) W.A. Weber = *P. ligulatum* (Jones) Barneby Duchesne Co., Theodore, Jones sn, 1908 (POM!;US!;CAS!;BRY!).

*Pediocactus despainii* Welsh & Goodrich Great Basin Naturalist 40: 83. 1980. Cactaceae. Emery Co., San Rafael Swell, Despain 266a, 1978 (BRY!;NY!).

*Pediocactus hermarii* W.T. Marshall Saguaroiland Bull. 8: 78. 1954. Cactaceae. = *P. simpsonii* (Engelm.) Britt. & Rose Garfield Co., Hatch, Hermann & Hermann sn, 1953 (BRY!).

*Pediocactus winkleri* Heil Cact. & Succ. J. (U.S.) 51: 28. 1979. Cactaceae. Wayne Co., Winkler sn, (UNM).

*Penstemon abietinus* Pennell Contr. U.S. Natl. Herb. 20: 376. 1920. Scrophulariaceae. Sevier Co., Irelands Ranch, Jones 5440, 1894 (US!;RM!;BRY!;NY!).

*Penstemon acuminatus* Dougl. var. *congestus* Jones Proc. Calif. Acad. II, 5: 714. 1895. Scrophulariaceae. Syn: *P. pachyphyllus* ssp. *congestus* (Jones) Keck; do var. *congestus* (Jones) N. Holmgr. = *P. congestus* (Jones) Pennell Washington Co., near Cannan Ranch, Rockwell, Jones 5262, 1894 (POM!;US!).

*Penstemon angustifolius* Nutt. var. *vernalisensis* N. Holmgren Brittonia 31: 229. 1978. Scrophulariaceae. Uintah Co., n Maeser, Holmgren et al. 8748, 1979 (NY!;BRY!;UTC!).

*Penstemon atwoodii* Welsh Great Basin Naturalist 35: 378. 1976. Scrophulariaceae. Kane Co., sse Canaan Peak, Welsh & Welsh 12821, 1975 (BRY!;UT!;NY!;UTC!).

*Penstemon azureus* var. *ambiguus* Gray Syn. Fl. N. Amer. 2: 272. 1886. Scrophulariaceae. = *P. sepalilus* A. Nels. Utah Co., near Provo, Watson 786, 1869 (US!;NY!).

*Penstemon bracteatus* Keck Leaf. W. Bot. 1: 82. 1934. Scrophulariaceae. Garfield Co., Red Canyon, Eastwood & Howell 783, 1933 (CAS!).

*Penstemon caespitosus* Nutt. ex Gray ssp. *perbrevis* Pennell Contr. U.S. Natl. Herb. 20: 375. 1920. Scrophulariaceae. Carbon Co., near Castle Gate, Pennell 6138, 1915 (NY!;US!).

*Penstemon caespitosus* Nutt. ex Gray var. *suffruticosus* Gray Syn. Fl. N. Amer. 2: 270. 1878. Scrophulariaceae. = *P. tusharensis* N. Holmgren Beaver Co., near Beaver, Palmer sn, 1877 (ISC!).

*Penstemon carnosus* Pennell in Graham Ann. Carnegie Mus. 25: 329. 1937. Scrophulariaceae. Emery Co., San Rafael Swell, Cottam 5229, 1935 (UT!;NY!;UTC!).

*Penstemon comarrhenus* Gray Proc. Amer. Acad. 12: 81. 1876. Scrophulariaceae. Garfield (?) Co., Aquarius Plateau, Ward 462, 1875 (NY!;US!).



*Penstemon concinnus* Keck Amer. Midl. Naturalist 23: 608. 1940. Scrophulariaceae. Millard Co., Tunnel Springs Range, Cottan 5634, 1933 (CAS!;US!;UT!;NY!).

*Penstemon confertus* var. *aberrans* Jones Proc. Calif. Acad. II, 5: 715. 1895. Scrophulariaceae. = *P. procerus* var. *aberrans* (Jones) A. Nels. Wasatch Co., Soldier Summit, Jones 5601i, 1894 (POM!;US!).

*Penstemon confusus* Jones Zoe 4: 280. 1893. Scrophulariaceae. Juab Co., Detroit, Jones sn, 1891 (POM!;CAS!;BRY!).

*Penstemon crandallii* A. Nels. ssp. *atratus* Keck Bull. Torrey Bot. Club 64: 370. 1937. Scrophulariaceae. = *P. crandallii* var. *atratus* (Keck) N. Holmgren San Juan (?) Co., La Sal Mts., Jones sn, 1914 (CAS!;US!;POM!;NY!;BRY!).

*Penstemon cyananthus* Hook. ssp. *compactus* Keck Amer. Midl. Naturalist 23: 615. 1940. Scrophulariaceae. = *P. compactus* (Keck) Crosswhite Cache Co., Mt. Naomi, Maguire 16148, 1938 (UTC!).

*Penstemon cyananthus* Hook. ssp. *longiflorus* Pennell Contr. U.S. Natl. Herb. 20: 353. 1920. Scrophulariaceae. = *P. longiflorus* (Pennell) S. Clark Beaver Co., near Beaver, Palmer 376, 1877 (US!;NY!).

*Penstemon dolius* Jones ex Pennell Contr. U.S. Natl. Herb. 20: 341. 1920. Scrophulariaceae. Tooele Co., Deep Creek Mts., Jones sn, 1891 (POM!;BRY!).

*Penstemon dolius* Jones var. *duchesnensis* N. Holmgren Brittonia 31: 219. 1979. Scrophulariaceae. Duchesne Co., e Duchesne, Holmgren et al, 8762, 1978 (NY!;BRY!;UTC!).

*Penstemon eatonii* Gray Proc. Amer. Acad. 8: 395. 1872. Scrophulariaceae. Utah Co., Provo Canyon, Watson 776, 1869 (US!;NY!).

*Penstemon eatonii* Gray var. *undosus* Jones Proc. Calif. Acad. II, 5: 715. 1895. Scrophulariaceae. Syn: *P. eatonii* ssp. *undosus* (Jones) Keck Washington Co., St. George, Jones 51101h, 1894 (POM!;US!;NY!).

*Penstemon garrettii* Pennell Contr. U.S. Natl. Herb. 20: 353. 1920. Scrophulariaceae. = *P. scariosus* Pennell sens. lat. Wasatch Co., near Midway, Carlton & Garrett 6697, 1905 (NY!;US!).

*Penstemon glaber* var. *utahensis* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 217. 1871. Scrophulariaceae. = *P. subglaber* Rydb. Summit Co., Uinta Mts, Watson 771, 1869 (US!;NY!).

*Penstemon goodrichii* N. Holmgren Brittonia 30: 416. 1978. Scrophulariaceae. Uintah Co., e Lapoint, Holmgren et al 8760, 1978 (NY!;BRY!;UTC!).

*Penstemon grahamii* Keck in Graham Ann. Carnegie Mus. 26: 331. 1937. Scrophulariaceae. Uintah Co., Sand Wash, Graham 7883, 1933 (CM!).

*Penstemon heterophyllus* var. *latifolius* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 222. 1871. Scrophulariaceae. = *P. platyphyllus* Rydb. Salt Lake Co., Cottonwood Canyon, Watson 787, 1869 (US!).

*Penstemon humilis* Nutt. in Gray var. *brevifolius* Gray Syn. Fl. N. Amer. 2(1): 267. 1878. Scrophulariaceae. Salt Lake Co., Cottonwood Canyon, Watson 781, 1869 (US!;NY!).

*Penstemon jonesii* Pennell (hybrid) Contr. U.S. Natl. Herb. 20: 338. 1920. Scrophulariaceae. = *P. eatonii* x *P. leiophyllus* Washington Co., Springdale, Jones 5250, 1894 (US!).

*Penstemon laevis* Pennell Contr. U.S. Natl. Herb. 20: 347. 1920. Scrophulariaceae. Washington Co., Springdale, Jones 5250, 1894 (US!;POM!).

*Penstemon leiophyllus* Pennell Contr. U.S. Natl. Herb. 20: 346. 1920. Scrophulariaceae. Garfield Co., Mammoth Creek, Jones 6026b, 1894 (US!).

*Penstemon lentus* Pennell ssp. *albiflorus* Keck Amer. Midl. Naturalist 23: 616. 1940. Scrophulariaceae. San Juan Co., 8 mi w Blanding, Porter 1801, 1939 (RM!;NY!;UTC!).

*Penstemon leonardii* Rydb. Bull. Torrey Bot. Club 40: 483. 1913. Scrophulariaceae. Wasatch Mts., Leonard sn, 1884 (NY!).

*Penstemon leptanthus* Pennell Contr. U.S. Natl. Herb. 20: 339. 1920. Scrophulariaceae. Sanpete Co., Twelve Mile Creek, Ward 280, 1875 (US!).

*Penstemon linarioides* Gray in Torr. var. *sileri* Gray Syn. Fl. N. Amer. 2(1): 270. 1878. Scrophulariaceae. Kane (?) Co., S. Utah, Siler sn, 1873 (NY!).

*Penstemon mucronatus* N. Holmgren Brittonia 31: 234. 1979. Scrophulariaceae. Daggett Co., s. Manila, Holmgren et al. 8447, 1978 (NY!;BRY!;UTC!).

*Penstemon nanus* Keck Amer. Midl. Naturalist 23: 607. 1940. Scrophulariaceae. Millard Co., Desert Experimental Range, Plummer 7313, 1939 (CAS!;BRY!;UT!;NY!;UTC!).

*Penstemon navajoa* N. Holmgren Brittonia 30: 419. 1978. Scrophulariaceae. San Juan Co., Navajo Mt., N. & P. Holmgren 8587, 1977 (NY!;BRY!;UTC!).

*Penstemon obtusifolius* Pennell Contr. U.S. Natl. Herb. 20: 370. 1920. Scrophulariaceae. = *P. humilis* var. *obtusifolius* (Pennell) Reveal Washington Co., Springdale, Jones 5249am, 1894 (US!;POM!;NY!).

*Penstemon ophianthus* Pennell Contr. U.S. Natl. Herb. 20: 343. 1920. Scrophulariaceae. Syn: *P. jamesii* ssp. *ophianthus* (Pennell) Keck Wayne Co., Thurber, Jones 5708, 1894 (US!;POM!;NY!).

*Penstemon palmeri* Gray ssp. *eglandulosus* Keck Amer. Midl. Naturalist 18: 797. 1937. Scrophulariaceae. = *P. palmeri* var. *eglandulosus* (Keck) N. Holmgren Kane Co., 2.5 mi n Kanab, Maguire et al. 12279, 1935 (RM!;NY!;UTC!).

*Penstemon parvus* Pennell Contr. U.S. Natl. Herb. 20: 345. 1920. Scrophulariaceae. Garfield Co., Aquarius Plateau, Ward 546, 1875 (US!).

*Penstemon patricus* N. Holmgren Brittonia 31: 238. 1979. Scrophulariaceae. Juab Co., Thoms Creek Canyon, Holmgren et al. 9018, 1978 (NY!;BRY!;UT!;UTC!).

*Penstemon phlogifolius* Greene Leaf. Bot. Obs. & Crit. 1: 164. 1906. Scrophulariaceae. = *P. watsonii* Gray Carbon Co., Castle Gate, Jones 5486s, 1894 (US!;POM!).

*Penstemon platyphyllus* Rydb. Bull. Torrey Bot. Club 36: 690. 1909. Scrophulariaceae. Syn: *P. heterophyllus* var. *latifolius* Wats. Salt Lake Co., Cottonwood Canyon, Watson 787, 1869 (US!).

*Penstemon pseudohumilis* Jones Contr. W. Bot. 12: 65. 1908. Scrophulariaceae. = *P. marcusii* (Keck) N. Holmgren? Carbon Co., Price, Jones sn, 1898 (POM!).

*Penstemon pumilus* var. *thompsoniae* Gray Syn. Fl. N. Amer. 2(1): 269. 1878. Scrophulariaceae. Syn: *P. caespitosus* var. *thompsoniae* (Gray) A. Nels. = *P. thompsoniae* (Gray) Rydb. Kane Co., Kanab, Thompson sn, 1872 (GH).

- Penstemon scariosus* Pennell Contr. U.S. Natl. Herb. 20: 353. 1920. Scrophulariaceae. Syn: *P. garrettii* Pennell Sanpete Co., Musinia Peak, Tidestrom 568, 1907 (US!).
- Penstemon tidentromii* Pennell Contr. U.S. Natl. Herb. 20: 379. 1920. Scrophulariaceae. Sanpete Co., San Pitch Mts., Tidestrom 1296, 1908 (US!).
- Penstemon uintahensis* Pennell Contr. U.S. Natl. Herb. 20: 350. 1920. Scrophulariaceae. Uintah Co., Dyer Mine, Goodding 1221, 1902 (US!;RM!;BRY!;NY!).
- Penstemon utahensis* Eastw. Zoe 4: 124. 1893. Scrophulariaceae. San Juan Co., n Monticello, Eastwood sn, 1892 (CAS!;US!).
- Penstemon wardii* Gray Proc. Amer. Acad. 12: 82. 1876. Scrophulariaceae. Sevier Co., near Glenwood, Ward 162, 1875 (US!;NY!).
- Petalonyx parryi* Gray Proc. Amer. Acad. 10: 77. 1874. Loasaceae. Washington Co., St. George ("within a stones throw of the great Mormon temple"), Parry 75, 1874 (NY!;BRY!;ISC!).
- Petalostemon flavescens* Wats. Amer. Naturalist 7: 299. 1873. Fabaceae. = *Dalea flavescens* (Wats.) Welsh Kane Co., "Kanab," Thompson sn, 1871 (US!).
- Peteria thompsonae* Wats. Amer. Naturalist 7: 300. 1873. Fabaceae. Kane Co., Kanab, Thompson sn, 1872 (GH;US!;NY!;BRY!).
- Peucedanum bicolor* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 129. 1871. Apiaceae. = *Lomatium bicolor* (Wats.) Coult. & Rose Summit Co., Parleys Park, Watson 467, 1869 (US!;NY!).
- Peucedanum graveolens* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 128. 1871. Apiaceae. = *Lomatium nuttallii* (Gray) Macbr. Wasatch Mts., Watson 463, 1869 (US!;NY!).
- Peucedanum juniperinum* Jones Contr. W. Bot. 8: 29. 1898. Apiaceae. = *Lomatium juniperinum* (Jones) Coult. & Rose Summit Co., Coalville, Jones sn, 1889 (POM!;US!;BRY!).
- Peucedanum lapidosum* Jones Zoe 2: 246. 1891. Apiaceae. = *Cymopterus longipes* Wats. Summit Co., Echo, Jones sn, 1890 (US!;RM!;POM!).
- Peucedanum millefolium* Wats. Rep. U.S. Explor. 40th Parallel, Bot. 5: 129. 1871. Apiaceae. = *Lomatium grayi* Coult. & Rose Davis Co., Antelope Island, Watson 466, 1869 (NY!;US!).
- Peucedanum parryi* Wats. Proc. Amer. Acad. 11: 143. 1876. Apiaceae. = *Lomatium parryi* (Wats.) Macbr. Washington (?) Co., Southern Utah, Parry 85, 1874 (NY!).
- Peucedanum triternatum* var. *platycarpum* Torr. in Standb. Explor. Great Salt Lake 389. 1852. Apiaceae. = *Lomatium triternatum* var. *platycarpum* (Torr.) Cronq. Great Salt Lake, Stansbury sn, 1850 (NY!).
- Phaca mollissima* var. *utahensis* Torr. in Stansb. Explor. Great Salt Lake 385. 1852. Fabaceae. = *Astragalus utahensis* (Torr.) T. & G. Tooele Co., w shore Stansbury Island, Great Salt Lake, Stansbury sn, 1850 (NY!).
- Phaca pardalina* Rydb. N. Amer. Fl. 24: 352. 1929. Fabaceae. = *Astragalus pardalinus* (Rydb.) Barneby Emery Co., Cedar Mt., Jones sn, 1915 (NY!;POM!).
- Phacelia argillacea* Atwood Phytologia 26: 437. 1973. Hydrophyllaceae. Utah Co., Spanish Fork Canyon, Atwood et al. 3091, 1971 (BRY!;UT!;NY!;US!;UTC!).
- Phacelia cephalotes* Gray Proc. Amer. Acad. 10: 325. 1875. Hydrophyllaceae. Washington Co., near St. George, Parry 179, 1874 (NY!;US!;BRY!;ISC!).
- Phacelia demissa* Gray var. *heterotricha* J.T. Howell Amer. Midl. Naturalist 29(1): 8. 1943. Hydrophyllaceae. Piute Co., Marysvale, Jones 5388o, 1894 (POM!;US!).
- Phacelia foetida* Goodding Bot. Gaz. 37: 58. 1904. Hydrophyllaceae. = *P. palmeri* Torr. Washington Co., Diamond Valley, Goodding 833, 1902 (RM!).
- Phacelia howelliana* Atwood Rhodora 74: 456. 1972. Hydrophyllaceae. San Juan Co., Bluff, Atwood 2454, 1970 (BRY!;RM!;NY!;US!;UTC!).
- Phacelia incana* Brand Beit. z. Kenntnis der Hydrophyll. 8. 1911. Hydrophyllaceae. Tooele Co., Dugway, Jones sn, 1891 (POM!;RM!;NY!).
- Phacelia indecora* J.T. Howell Amer. Midl. Naturalist 29: 12. 1943. Hydrophyllaceae. San Juan Co., Bluff, Jones sn, 1919 (CAS!).
- Phacelia mammillariensis* Atwood Phytologia 26: 437. 1973. Hydrophyllaceae. Kane Co., e Glen Canyon City, Welsh & Atwood 9809, 1970 (BRY!).
- Phacelia nudicaulis* Eastw. Zoe 4: 123. 1893. Hydrophyllaceae. = *P. demissa* Gray var. *demissa* Grand Co., near Moab, Eastwood sn, 1892 (CAS!;POM!;US!).
- Phacelia orbicularis* Rydb. Bull. Torrey Bot. Club 40: 479. 1913. Hydrophyllaceae. = *P. corrugata* A. Nels. Wayne Co., Marvine Laccolite, Jones 5663, 1894 (US!;NY!).
- Phacelia palmeri* Torr. in Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 251. 1871. Hydrophyllaceae. Syn: *P. foetida* Goodding Washington Co., near St. George, Palmer 4, 1870 (NY!;US!).
- Phacelia pinetorum* Jones Zoe 4: 279. 1893. Hydrophyllaceae. = *Eucrypta micrantha* Torr. Tooele or Juab Co., Deep Creek Mts., Jones sn, 1891 (POM!;CAS!).
- Phacelia pulchella* Gray Proc. Amer. Acad. 10: 326. 1875. Hydrophyllaceae. Washington Co., near St. George, Parry 182, 1874 (GH;POM!;NY!;US!;BRY!).
- Phacelia pulchella* Gray var. *sabulonum* J.T. Howell Amer. Midl. Naturalist 29: 12. 1943. Hydrophyllaceae. = *P. pulchella* Gray Kane Co., Kaiparowits Plateau, Tompkins sn, 1939 (CAS!).
- Phacelia rafaelsensis* Atwood Rhodora 74: 454. 1972. Hydrophyllaceae. Wayne Co., Capitol Reef National Monument, Atwood & Higgins 1834, 1969 (BRY!;CAS!;RM!;NY!;US!;UTC!).
- Phacelia rotundifolia* Torr. ex Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 253. 1871. Hydrophyllaceae. Southern Utah, Palmer sn, 1870 (NY!;US!).
- Phacelia utahensis* Voss Bull. Torrey Bot. Club 64: 135. 1937. Hydrophyllaceae. Sanpete Co., Gunnison, Jones sn, 1910 (POM!).
- Phlox austromontana* Cov. Contr. U.S. Natl. Herb. 4: 151. 1893. Polemoniaceae. Washington Co., Beaverdam Mts., Bailey 1944, 1891 (US!).
- Phlox austromontana* Cov. var. *prostrata* E. Nels. Rev. W. N. Amer. Phloxes 19. 1899. Polemoniaceae. Syn: *P. jonesii* Wherry Washington Co., Silver Reef, Jones 5163y-z, 1894 (NY!;US!;RM!;POM!;BRY!).
- Phlox caesia* Eastw. Leaf. W. Bot. 2: 54. 1937. Polemoniaceae. = *P. gladiiformis* (Jones) E. Nels. Garfield Co., Red Canyon, Eastwood & Howell 752, 1933 (CAS!).
- Phlox canescens* T. & G. in Beckwith Rep. U.S. Explor. & Surv. R.R. Pacific 2: 122. 1857. Polemoniaceae. = *P. hoodii* var. *canescens* (T. & G.) Peck Tooele Co., s Great Salt Lake, Beckwith 4, 1854 (NY!).

*Phlox cluteana* A. Nels. Amer. Botanist 28: 24. 1922. Polemoniaceae. San Juan Co., Navajo Mt., Clute 18, 1919(?).

*Phlox densa* Brand Pflanzenr. 4. Fam. 250. 83. 1907. Polemoniaceae. = *P. austromontana* Cov. Beaver Co., Frisco, Jones 2021, 1880 (US!;POM!;NY!;UTC!).

*Phlox grahamii* Wherry Brittonia 5: 63. 1943. Polemoniaceae. = *P. longifolia* Nutt. Uintah Co., Sand Wash, Graham 7884, 1933 (CM!).

*Phlox jonesii* Wherry Notul. Nat. Acad. Nat. Sci. Philadelphia 146: 8. 1944. Polemoniaceae. = *P. austromontana* var. *prostrata* E. Nels. Washington Co., Zion Canyon, Jones sn, 1923 (US!;CAS!;POM!).

*Phlox longifolia* Nutt. var. *gladiformis* Jones Proc. Calif. Acad. II, 5: 711. 1895. Polemoniaceae. = *P. gladiformis* (Jones) E. Nels. Iron Co., Cedar Canyon, Jones 5208c, 1894 (POM!;US!).

*Physaria acutifolia* Rydb. var. *purpurea* Welsh & Reveal Great Basin Naturalist 37: 345. 1977. Brassicaceae. Grand Co., near Segoe, Welsh 6902, 1968 (BRY!).

*Physaria chambersii* Rollins var. *membranacea* Rollins Rhodora 41: 404. 1939. Brassicaceae. = *P. lepidota* var. *membranacea* (Rollins) Rollins Garfield Co., Red Canyon, Rollins & Chambers 2448, 1938 (GH;RM!;US!;NY!).

*Physaria grahamii* Morton in Graham Ann. Carnegie Mus. 26: 220. 1937. Brassicaceae. Uintah Co., Chandler Canyon, Graham 9976, 1935 (US!;CM!).

*Physaria lepidota* Rollins Brittonia 33: 335. 1981. Brassicaceae. Kane Co., between Kanab and Zion, Rollins & Rollins 79198, 1979 (GH).

*Physaria newberryi* Gray var. *racemosa* Rollins Brittonia 33: 339. 1981. Brassicaceae. Washington Co., 13.5 mi s St. George, Holmgren et al. 9183, 1979 (GH).

*Pinus contorta* Dougl. ex Loud. var. *latifolia* Engelm. ex Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 331. 1871. Pinaceae. = *P. contorta* Dougl. Summit Co., Uinta Mts., Watson 1110, 1869 (?).

*Plantago major* L. var. *pachyphylla* Pilger Feddes Repert. 18: 277. 1922. Plantaginaceae. = *P. major* L. Salt Lake Co., Salt Lake City, Jones 1030, 1879 (POM!;UT!).

*Plantago myosuroides* Rydb. Mem. New York Bot. Gard. 1: 369. 1900. Plantaginaceae. = *P. elongata* Pursh Salt Lake Co., Salt Lake Valley, near mouth of Jordan River, Watson 749, 1869 (US!).

*Platystemon remotus* Greene Pittonia 5: 190. 1903. Papaveraceae. = *P. californicus* Benth. Washington Co., near St. George, Parry 8, 1874 (CAS!;ISC!).

*Platystemon rigidulus* Greene Pittonia 5: 167. 1903. Papaveraceae. = *P. californicus* Benth. Washington Co., near St. George, Parry 8a, 1874 (CAS!).

*Platystemon terminii* Fedde Pflanzenr. 4. Fam. 104: 128. 1909. Papaveraceae. = *P. californicus* Benth. Washington Co., Diamond Valley, Jones 5121, 1894 (POM!;US!).

*Pleurophragma platypodium* Rydb. Bull. Torrey Bot. Club 34: 434. 1907. Brassicaceae. = *Thelypodium integrifolium* var. *gracilipes* Robins. Grand Co., Moab, Jones sn, 1891 (NY!;CAS!;RM!;US!;BRY!).

*Poa eatonii* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 386. 1871. Poaceae. = *P. fendleriana* (Steud.) Vasey Salt Lake Co., Cottonwood Canyon, Eaton 1891, 1869 (NY!).

*Poa festucoides* Jones Proc. Calif. Acad. II, 5: 723. 1895. Poaceae. = *Festuca thurberi* Vasey Garfield Co., Mt. Ellen, Jones 5671, 1894 (POM!;US!).

*Poa longiligula* Scribn. & Will. USDA Div. Agrostol. Circ. 9: 3. 1899. Poaceae. = *P. fendleriana* (Steud.) Vasey sens. lat. Washington Co., Silver Reef, Jones 5149at, 1894 (RM!;NY!;US!).

*Poa scabriuscula* Williams USDA Div. Agrostol. Circ. 10: 4. 1899. Poaceae. = *P. fendleriana* (Steud.) Vasey Sevier Co., s Glenwood, Ward 136, 1895 (US!).

*Polemonium albiflorum* Eastw. Bot. Gaz. 37: 437. 1904. Polemoniaceae. = *P. foliosissimum* var. *alpinum* Brand. Carbon Co., Scofield, Harkness sn, 1902 (CAS!;RM!).

*Polemonium foliosissimum* Gray ssp. *albiflorum* var. *alpinum* Brand Pflanzenr. 4. Fam. 250: 34. 1907. Polemoniaceae. Syn: *P. albiflorum* Eastw.; *P. foliosissimum* ssp. *albiflorum* (Eastw.) Brand Salt Lake Co., Alta, Jones 1114, 1879 (NY!;POM!;UT!).

*Polygala acanthoclada* Gray Proc. Amer. Acad. II: 73. 1876. Polygalaceae. Syn: *P. acanthoclada* var. *intricata* Eastw. San Juan Co., San Juan R., Brandegee sn, 1873 (NY!).

*Polygala acanthoclada* Gray var. *intricata* Eastw. Proc. Calif. Acad. II, 6: 283. 1896. Polygalaceae. = *P. acanthoclada* Gray San Juan Co., Willow Creek, Eastwood 10, 1895 (CAS!).

*Polygonum minimum* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 315. 1871. Polygonaceae. Summit Co., Uinta Mts., Watson 1058, 1869 (US!).

*Polygonum utahense* Brenckle & Cottam Bull. Univ. Utah 30: 3. 1940. Polygonaceae. Garfield Co., 6 m n Escalante, Cottam 6507, 1935 (UT!;US!;BRY!;CAS!;RM!;UTC!).

*Potamogeton pusillus* L. var. *vulgaris* subvar. *interuptus* J.W. Robbins Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 338. 1871. Potamogetonaceae. = *P. pusillus* var. *pusillus* Summit Co., Parleys Park, Silver Cr., Watson 1137, 1869 (NY!).

*Potentilla dissecta* var. *decurrens* Wats. Proc. Amer. Acad. 8: 557. 1873. Rosaceae. Syn: *P. decurrens* (Wats.) Rydb. = *P. ovina* var. *decurrens* (Wats.) Welsh & Johnston Summit Co., Uinta Mts., Watson 329, 1869 (US!).

*Potentilla diversifolia* var. *pinnatisecta* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 87. 1871. Rosaceae. = *P. ovina* Macoun Summit Co., Uinta Mts., Watson 331, 1869 (NY!).

*Potentilla modesta* Rydb. N. Amer. Fl. 22: 331. 1908. Rosaceae. = *P. concinna* var. *modesta* (Rydb.) Welsh & Johnston Piute Co., Mt. Barrette, near Marysvale, Rydberg & Carlton 7261, 1905 (NY!).

*Potentilla paucijuga* Rydb. N. Amer. Fl. 22: 348. 1908. Rosaceae. = *P. pensylvanica* var. *paucijuga* (Rydb.) Welsh & Johnston Grand (?) Co., La Sal Mts., Purpus 251, 1899 (NY!).

*Potentilla pectinisecta* Rydb. Bull. Torrey Bot. Club 24: 7. 1897. Rosaceae. = *P. gracilis* Dougl. Salt Lake Co., Salt Lake City, Jones 1765, 1880 (RM!;NY!;BRY!).

*Potentilla proxima* Rydb. N. Amer. Fl. 22(4): 339. 1908. Rosaceae. = *P. concinna* var. *proxima* (Rydb.) Welsh & Johnston Piute Co., s Belknap Peak, Rydberg & Carlton 7369, 1905 (NY!).



- Potentilla sabulosa* Jones Proc. Calif. Acad. Sci. II, 5: 680. 1895. Rosaceae. = *Ivesia sabulosa* (Jones) Keck Garfield Co., Sevier River, Jones 6032, 1894 (US!; POM!; CAS!; RM!; NY!).
- Potentilla wardii* Greene Leaf. Bot. Obs. & Crit. 2: 138. 1911. Rosaceae. = *P. hippiana* Lehm. Wayne Co., Thousand Lake Mt., Ward sn, 1875 (US!).
- Primula incana* Jones Proc. Calif. Acad. II, 5: 705. 1895. Primulaceae. Garfield Co., Sevier River, Jones 5312av, 1894 (POM!).
- Primula maguirei* L.O. Williams Amer. Midl. Naturalist 7: 747. 1936. Primulaceae. Cache Co., Logan Canyon, Maguire & Maguire 3650, 1932 (MO; UT!; UTC!).
- Primula specuicola* Rydb. Bull. Torrey Bot. Club 40: 461. 1913. Primulaceae. San Juan Co., near Bluff, Rydberg 9882, 1911 (NY!; US!; UT!).
- Prosartes trachycarpa* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 344. 1871. Liliaceae. = *Disporum trachycarpum* Wats. Summit Co., Parleys Park, Watson 1166, 1869 (NY!).
- Psathyrotes pilifera* Gray Proc. Amer. Acad. 19: 50. 1883. Asteraceae. Kane Co., Kanab, Thompson sn, 1872 (GH).
- Pseudocymopterus tidestromii* Coult. & Rose Contr. U.S. Natl. Herb. 12: 447. 1909. Apiaceae. = *Cymopterus lemmonii* (Coult. & Rose) Dorn Sevier Co., Mt. Terrell, Tidestrom 1811, 1908 (US!).
- Pseudocymopterus versicolor* Rydb. Fl. Rocky Mts. 623, 1064. 1917. Apiaceae. = *Cymopterus lemmonii* (Coult. & Rose) Dorn Garfield Co., Aquarius Plateau, Rydberg & Carlton 7426, 1905 (NY!).
- Pseudopteryxia longiloba* Rydb. Bull. Torrey Bot. Club 40: 72. 1913. Apiaceae. = *Cymopterus hendersonii* (Coult. & Rose) Cronq. San Juan Co., Abajo Mts., Rydberg & Garrett 9761, 1911 (NY!; UT!).
- Pseudotsuga globosa* Flous Bull. Soc. Hist. Nat. Toulouse 66: 334. 1934. Pinaceae. = *P. menziesii* (Mirb.) Franco Salt Lake Co., Big Cottonwood Canyon, Rydberg & Carlton 6587, 1905 (?).
- Psoralea castorea* Wats. Proc. Amer. Acad. 14: 291. 1879. Fabaceae. Beaver Co. (more likely Beaverdam, Arizona), near Beaver City, Palmer 96, 1877 (US!; NY!; BRY!; ISC!).
- Psoralea epipsila* Barneby Leaf. W. Bot. 3: 193. 1943. Fabaceae. Kane Co., 17 mi e Kanab, Ripley & Barneby 4832, 1942 (CAS!).
- Psoralea juncea* Eastw. Proc. Calif. Acad. II, 6: 286. 1897. Fabaceae. San Juan Co., Epsom Creek, Eastwood 21, 1895 (CAS!; US!; NY!).
- Psoralea mephitica* Wats. Proc. Amer. Acad. 14: 291. 1879. Fabaceae. Washington Co., near St. George, Palmer 97, 1877 (US!; NY!; BRY!; ISC!).
- Psoralea pariensis* Welsh & Atwood in Welsh, Atwood, & Reveal Great Basin Naturalist 35: 353. 1975. Fabaceae. Garfield Co., Bryce Canyon, Welsh & Murdock 12859, 1975 (BRY!; UT!; NY!; US!; UTC!; ISC!).
- Psoralea rafaensis* Jones Contr. W. Bot. 18: 41. 1933. Fabaceae. = *P. aromatica* Payson Grand Co., La-Sal Mts., Jones sn, 1914 (US!; CAS!).
- Psoralea rafaensis* Jones var. *magna* Jones Contr. W. Bot. 18: 41. 1933. Fabaceae. = *P. aromatica* Payson Emery Co., San Rafael Swell, Jones sn, 1914 (CAS!).
- Psoralea stenophylla* Rydb. Bull. Torrey Bot. Club 40: 46. 1913. Fabaceae. = *P. lanceolata* var. *stenophylla* (Rydb.) Toft & Welsh Grand Co., Wilson Mesa, Rydberg & Garrett 8367, 1911 (NY!).
- Psoralea stenostachys* Rydb. Bull. Torrey Bot. Club 40: 46. 1913. Fabaceae. = *P. lanceolata* var. *stenostachys* (Rydb.) Welsh Tooele Co., Government Well, Jones 6221, 1900 (NY!; US!; CAS!; POM!; RM!; BRY!).
- Ptelea neglecta* Greene Contr. U.S. Natl. Herb. 10: 71. 1906. Rutaceae. = *P. trifoliata* ssp. *pallida* var. *lutescens* (Greene) V.K. Bailey Kane Co., near Kanab, Wetherill sn, 1897 (CAS!).
- Pterchiton occidentale* Torr. & Frem. in Frem. Rep. Exped. Rocky Mts. 318. 1845. Chenopodiaceae. = *Atriplex canescens* (Pursh) Nutt. Davis (?) Co., Great Salt Lake, Fremont sn, 1843 (NY!).
- Ptilocalais macrolepis* Rydb. Bull. Torrey Bot. Club 38: 11. 1911. Asteraceae. = *Microseris nutans* (Geyer) Schulz-bip Salt Lake Co., Salt Lake City, Garrett 182, 1903 (US!; NY!; BRY!).
- Pyrocoma cheiranthifolia* Greene Leaf. Bot. Obs. & Crit. 2: 47. 1910. Asteraceae. = *Haplopappus clementis* (Rydb.) Blake Sanpete Co., w. Ephriam, Tidestrom 534, 1907 (US!).
- Pyrocoma lapathifolia* Greene Leaf. Bot. Obs. & Crit. 2: 13. 1909. Asteraceae. = *Haplopappus integrifolius* Gray? Utah, Ward 596, 1875 (US!).
- Pyrocoma subcaesia* Greene Leaf. Bot. Obs. & Crit. 2: 12. 1909. Asteraceae. = *Haplopappus clementis* (Rydb.) Blake Aarfield Co., Panguitch Lake, Jones 6005, 1894 (US!; RM!; POM!; NY!; BRY!).
- Quercus eastwoodiae* Rydb. Bull. New York Bot. Gard. 2: 210. 1901. Fagaceae. = *Q. gambelii* Nutt. San Juan Co., Butler Wash, Eastwood 141, 1895 (NY!; US!).
- Quercus stellata* var. *utahensis* A. DC. Prodr. 16(2): 22. 1864. = *Q. gambelii* Nutt. Utah? (between Salt Lake and Sierras) Beckwith (?) sn, 1854?(G).
- Ranunculus acriformis* Gray var. *aestivalis* L. Benson Amer. Midl. Naturalist 40: 43. 1948. Ranunculaceae. Garfield Co., 8.3 mi n Panguitch, Benson 13421, 1948 (POM; RM; BRY!; UT!; UTC!).
- Ranunculus alismaefolius* Geyer ex Benth. var. *montanus* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 7. 1871. Ranunculaceae. Summit (?) Co., Uinta Mts., Watson 18, 1969 (US!).
- Ranunculus andersonii* Gray var. *tenellus* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 7. 1871. Ranunculaceae. = *R. juniperinus* Jones Salt Lake (?) Co., Pilot Rock Point, Salt Lake, Watson 17, 1869 (?).
- Ranunculus juniperinus* Jones Proc. Calif. Acad. II, 5: 616. 1895. Ranunculaceae. Syn: *R. andersonii* var. *tenellus* Wats. Washington Co., 18 mi w St. George, Jones 5011, 1894 (US!).
- Ranunculus multifidus* Pursh var. *repens* Hook. in Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 8. 1871. = *R. gnulinii* var. *hookeri* (D. Don) L. Benson Summit Co., Weber Valley, Watson 24, 1869 (US!).
- Ranunculus orthrorhynchus* Hook. var. *alpinus* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 9. 1871. Ranunculaceae. = *R. adoneus* var. *alpinus* (Wats.) L. Benson Salt Lake (?) Co., Wasatch Mts., Watson 30, 1869 (US!).
- Ranunculus orthrorhynchus* Hook. var. *platyphyllus* Gray Proc. Amer. Acad. 21: 377. 1886. Ranunculaceae. Salt Lake (?) Co., Wasatch Mts., Watson 28, 1869 (US!).

- Ranunculus utahensis* Rydb. Bull. Torrey Bot. Club 29: 158. 1902. Ranunculaceae. = *R. inamoenus* var. *alpeophilus* (A. Nels.) L. Benson Salt Lake Co., Alta, Jones 1130, 1879 (NY!;POM!;UTC!).
- Rhus nitens* Greene Proc. Washington Acad. Sci. 8: 190. 1906. Anacardiaceae. = *R. glabra* L. Utah Co., Provo, Jones 5612, 1894 (US!;RM!;NY!).
- Rhus utahensis* Goodding Bot. Gaz. 37: 57. 1904. Anacardiaceae. = *R. trilobata* var. *simplicifolia* (Greene) Barkley Washington Co., Diamond Valley, Goodding 832, 1902 (US!;RM!).
- Rhyosperter jonesii* Coult. & Rose Contr. U.S. Natl. Herb. 7: 186. 1900. Apiaceae. = *Cymopterus coulteri* (Jones) Mathias Juab Co., Juab, Jones 1691, 1880 (US!;POM!;BRY!).
- Ribes lacustre* (Pers.) Poir. in Lam. var. *lentum* Jones Proc. Calif. Acad. II, 5: 681. 1895. Saxifragaceae. = *R. montigenum* McClatchie Garfield Co., Henry Mts., Jones 56950, 1894 (POM!).
- Riddellia tagetina* var. *sparsiflora* Gray Syn. Fl. N. Amer. 1(2): 318. 1884. Asteraceae. = *Psilostrophe sparsiflora* (Gray) A. Nels. Kane Co., (Southern Utah), Bishop, Mrs. Thompson sn, 1872 (GH?).
- Rorippa integra* Rydb. Bull. Torrey Bot. Club 29: 236. 1902. Brassicaceae. = *R. curvipes* var. *integra* (Rydb.) Stuckey Wasatch Mts., Watson 64, 1869 (US!;NY!).
- Rosa chryscarpa* Rydb. Bull. Torrey Bot. Club 44: 74. 1917. Rosaceae. = *R. woodsii* Lindl. San Juan Co., Allen Canyon, sw of Abajo Mts., Rydberg & Garrett 9312, 1913 (NY!).
- Rosa puberulenta* Rydb. Fl. Rocky Mts. 443. 1917. Rosaceae. = *R. woodsii* Lindl. San Juan Co., Montezuma Canyon, e of Monticello, Rydberg & Garrett 9705, 1913 (NY!).
- Rumex maritimus* L. var. *athrix* St. John Rhodora 17: 79. 1915. Polygonaceae. = *R. maritimus* L. Sevier Co., Vermillion, Jones 5839, 1894 (MO;GH;POM!).
- Rumex subalpina* Jones Proc. Calif. Acad. II, 5: 720. 1895. Polygonaceae. = *R. pycnanthus* Rech. f. Piute Co., Brigham Peak, Jones 5957, 1894 (POM!;US!;RM!;BRY!;NY!).
- Rumex utahensis* Rech. f. Repert. Sp. Nov. 40: 298. 1936. Polygonaceae. = *R. salicifolius* Wein. Carbon Co., Kyune, Jones 5603, 1894 (US!).
- Salicornia utahensis* Tidestr. Proc. Biol. Soc. Washington 26: 13. 1913. Chenopodiaceae. = *S. pacifica* var. *utahensis* (Tidestr.) Munz Utah (?).
- Salix lutea* Nutt. var. *platyphylla* Ball Bot. Gaz. 71: 430. 1921. Salicaceae. = *S. rigida* Muhl. Salt Lake Co., City Creek Canyon, Ball 1336, 1908 (US!).
- Saxifraga caespitosa* L. sp. *exaratoides* var. *purpusii* Engler & Irmsch. Pflanzenz. 4. Fam. 117(1): 377. 1916. Saxifragaceae. = *S. caespitosa* var. *minima* Blankinship Grand (?) Co., LaSal Mts., Purpus 6642, 1899 (RM!).
- Schmaltzia affinis* Greene Leaf. Bot. Obs. & Crit. 1: 135. 1905. Anacardiaceae. = *Rhus trilobata* var. *simplicifolia* (Greene) Berkeley Kane Co., Kanab, Jones 5286e, 1894 (POM!;US!).
- Schoenocrambe pinnata* Greene Pittonia 3: 127. 1896. Brassicaceae. = *S. linifolia* (Nutt.) Greene Utah, Ward 1875 (US!).
- Sclerocactus contorus* Heil Cact. Succ. J. (U.S.) 51: 25. 1979. Cactaceae. San Juan Co., Canyonlands National Park, Heil sn, (UNM).
- Sclerocactus parviflorus* Clover & Jotter Bull. Torrey Bot. Club 68: 419. 1941. Cactaceae. Syn: *S. whipplei* authors, not (Engelm. & Bigel) Britt. San Juan Co., Glen Canyon, Clover & Jotter 2398, 1940 (US!).
- Sclerocactus terrae-canyonae* Heil Cact. Succ. J. (U.S.) 51: 26. 1979. Cactaceae. San Juan Co., without locality, Heil sn, (UNM).
- Sclerocactus wrightiae* L. Benson Cact. & Succ. J. (U.S.) 38: 55. 1966. Cactaceae. Emery Co., San Rafael Ridge, Benson & Benson 16595 (POM).
- Scrophularia utahensis* Gandg. Bull. Soc. Bot. France 66: 219. 1919. Scrophulariaceae. = *S. lanceolata* Pursh? Cache Co., Linford sn, 1897 (?).
- Sedum meehanii* Gray Proc. Amer. Acad. 16: 105. 1880. Crassulaceae. = ? *S. lanceolatum* Torr. Salt Lake Co., City Creek Canyon, Reading (GH).
- Selaginella utahensis* Flowers Amer. Fern J. 39: 83. 1949. Selaginellaceae. Washington Co., s St. George, Cottam 5644, 1931 (UT!;BRY!).
- Selaginella watsonii* Underwood Bull. Torrey Bot. Club 25: 127. 1898. Selaginellaceae. Salt Lake Co., Cottonwood Canyon, Watson 2370, 1869 (US!).
- Senecio aquariensis* Greenm. Ann. Missouri Bot. Gard. 3: 144. 1916. Asteraceae. = *S. streptanthifolius* Greene Garfield Co., Aquarius Plateau, Ward 505, 1875 (GH;US!).
- Senecio convallium* Greenm. Ann. Missouri Bot. Gard. 1: 266. 1914. Asteraceae. = *S. canus* Hooker Wayne Co., Rabbit Valley, Ward 704, 1875 (US!).
- Senecio dimorphophyllus* Greene var. *intermedius* T.M. Barkley Trans. Kansas Acad. 65: 362. 1963. Asteraceae. San Juan Co., LaSal Mts., Payson & Payson 4097, 1924 (MO;GH;RM!;UC).
- Senecio incurvus* A. Nels. Univ. Wyoming Publ. Bot. 1: 141. 1926. Asteraceae. = *S. spartioides* T. & G. Washington Co., Zion National Park, Nelson 9988, 1922 (RM!).
- Senecio jonesii* Rydb. Bull. Torrey Bot. Club 27: 179. 1900. Asteraceae. = *S. streptanthifolius* Greene Salt Lake Co., Alta, Jones 1125, 1879 (NY!;POM!;UTC!).
- Senecio kingii* Rydb. Bull. Torrey Bot. Club 37: 468. 1910. Asteraceae. = *S. eremophilus* var. *kingii* (Rydb.) Greenm. Salt Lake Co., Cottonwood Canyon, Watson 676 (NY!;US!).
- Senecio lapidum* Greenm. Ann. Missouri Bot. Gard. 4: 18. 1917. Asteraceae. = *S. multilobatus* T. & G. ex Gray Washington Co., Silver Reef, Jones 5163v, 1894 (NY!;BRY!).
- Senecio leonardii* Rydb. Bull. Torrey Bot. Club 37: 468. 1910. Asteraceae. = *S. streptanthifolius* Greene Utah Co., American Fork Canyon, Leonard 143, 1884 (NY!).
- Senecio lugens* Richards var. *hookeri* D.C. Eaton in Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 188. 1871. Asteraceae. = *S. sphaerocephalus* Greene Summit Co., Salt Lake City to Uintas, Watson 661, 1869 (US!;NY!).
- Senecio malmstenii* Blake in Tidestr. Proc. Biol. Soc. Washington 36: 183. 1923. Asteraceae. = *S. streptanthifolius* Greene Kane Co., Little Podunk Creek, Malmsten 131, 1916 (US!).
- Senecio multilobatus* T. & G. ex Gray Mem. Amer. Acad. II, 4: 109. 1849. Asteraceae. Uintah Co., Uinta River, Fremont 549, 1845 (NY!).

- Senecio pammelii* Greenm. Ann. Missouri Bot. Gard. 3: 118. 1916. Asteraceae. = *S. streptanthifolius* Greene Morgan Co., Peterson, Pammel & Blackwood 3870, 1902 (MO;GH).
- Senecio platylobus* Rydb. Bull. Torrey Bot. Club 27: 181. 1900. Asteraceae. = *S. streptanthifolius* Greene Wasatch Mountains, Watson 671, 1869 (NY!).
- Senecio rubricaulis* var. *aphanactis* Greenm. Ann. Missouri Bot. Gard. 3: 174. 1916. Asteraceae. = *S. streptanthifolius* Greene Cache Co., Logan, Smith 2208, 1910 (UTC!).
- Senecio wardii* Greene Pittonia 4: 116. 1900. Asteraceae. = *S. streptanthifolius* Greene Sevier Co., Fish Lake Mt., Ward 332, 1875 (GH;US!).
- Shepherdia rotundifolia* Parry Amer. Naturalist 9: 350. 1875. Elaeagnaceae. Kane Co., Valley of the Virgin, Siler sn, 1875 (US!;NDG!).
- Sidalcea crenulata* A. Nels. Proc. Biol. Soc. Washington 17: 93. 1904. Malvaceae. = *S. neomexicana* var. *crenulata* (A. Nels.) C.L. Hitchc. Juab Co., Juab, Goodding 1091, 1902 (RM!;BRY!;NY!;ISC!).
- Sieversia scapoidea* A. Nels. in Coult. & Nels. New Man. Bot. Rocky Mts. 263. 1909. Rosaceae. = *Geum rossii* (R. Br.) Ser. Piute Co., w of Marysvale, Jones 5871, 1894 (RM!;POM!).
- Silene petersonii* Maguire var. *minor* Hitchc. & Maguire Univ. Washington Publ. Biol. 13: 38. 1947. Caryophyllaceae. Garfield Co., Red Canyon, Maguire 19550, 1940 (UTC!;NY!).
- Silene petersonii* Maguire var. *petersonii* Madroño 6: 24. 1941. Caryophyllaceae. Sanpete Co., Wasatch Plateau, Maguire 20000, 1940 (UTC!;NY!;BRY!).
- Sisyrinchium radiculatum* Bickn. Bull. Torrey Bot. Club. 28: 576. 1901. Iridaceae. = *S. demissum* Greene Washington Co., St. George, Palmer 456, 1877 (NY!;ISC!).
- Sitanion insulare* J.G. Sm. USDA Div. Agrostol. Bull. 18: 14. 1899. Poaceae. = *Agrositanion saxicola* (Scribn. & Sm.) Bowden Tooele Co., Carrington Island, Watson 1338, 1869 (US!).
- Solidago garrettii* Rydb. Bull. Torrey Bot. Club 37: 134. 1910. Asteraceae. = *S. sparsiflora* Gray Salt Lake Co., Big Cottonwood Canyon, Garrett 2041, 1906 (NY!;UT!).
- Solidago radulina* Rydb. Bull. Torrey Bot. Club 31: 650. 1904. Asteraceae. = *S. nana* Nutt. Salt Lake Co., Cottonwood Canyon, Watson 558, 1869 (NY).
- Sonchus asper* (L.) All. var. *glanduliferus* Garrett Spr. Fl. Wasatch ed. 3. 119. 1917. Asteraceae. = *S. asper* (L.) Hill Utah (?).
- Sophia leptostylis* Rydb. Bull. Torrey Bot. Club 39: 325. 1912. Brassicaceae. = *Descurainia californica* (Gray) Schulz Salt Lake Co., Big Cottonwood Canyon, Rydberg & Carlton 6629, 1905 (NY!;US!;RM!).
- Sphaeralcea caespitosa* Jones Contr. W. Bot. 12: 4. 1908. Malvaceae. Beaver (?) Co., Wah Wah, Jones sn, 1906 (POM!;CAS!;US!;BRY!;NY!).
- Sphaeralcea grossularifolia* (H. & A.) Rydb. var. *moorei* Welsh Great Basin Naturalist 40: 35. 1980. Malvaceae. Kane Co., Lake Powell, Welsh & Atwood 11597, 1972 (BRY!).
- Sphaeralcea leptophylla* (Gray) Rydb. var. *janeae* Welsh Great Basin Naturalist 40: 36. 1980. Malvaceae. San Juan Co., White Rim road, Welsh 7085, 1968 (BRY!).
- Sphaeralcea psoraloides* Welsh Great Basin Naturalist 40: 36. 1980. Malvaceae. Wayne Co., Salt Wash, Welsh 13348, 1977 (BRY!).
- Sphaeralcea subrhoidea* Rydb. Bull. Torrey Bot. Club 40: 59. 1913. Malvaceae. = *S. munroana* (Doug.) Spach Wasatch Co., Midway, Carlton & Garrett 6691, 1905 (NY!;US!).
- Sphaeromeria ruthiae* Holmgren, Schultz, & Lowrey Brittonia 28: 257. 1976. Asteraceae. Washington Co., Zion Canyon, Holmgren et al. 16603, 1974 (UTC!;BRY!;UT!;US!;NY!).
- Sphaerostigma utahense* Small Bull. Torrey Bot. Club 23: 191. 1896. Onagraceae. = *Camissonia boothii* ssp. *alyssooides* (H. & A.) Raven Beaver Co., Milford, Jones 1773, 1880 (NY!;POM!).
- Spiraea caespitosa* Nutt. in T. & G. var. *elatior* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 81. 1871. Rosaceae. = *Petrophytum caespitosum* (Nutt.) Rydb. Box Elder Co., Raft R. Mts., Watson 307, 1869 (NY!).
- Stachys asperrima* Rydb. Bull. Torrey Bot. Club 36: 682. 1909. Lamiaceae. = *S. palustris* L. Salt Lake Co., Jordan, Leonard 138, 1884 (NY!).
- Stanleya canescens* Rydb. Bull. Torrey Bot. Club 29(1): 232. 1902. Brassicaceae. = *S. pinnata* var. *pinnata* Beaver Co., Frisco, Jones 1809, 1880 (NY!;POM!).
- Stenotus falcatus* Rydb. Bull. Torrey Bot. Club 27: 616. 1900. Asteraceae. = *Haplopappus acaulis* var. *glabratus* (D.C. Eaton) Hall Washington Co. (s. Utah), Red Creek, Palmer 202, 1877 (US!;NY!;ISC!).
- Stenotus latifolius* A. Nels. Bot. Gaz. 37: 266. 1904. Asteraceae. = *Haplopappus acaulis* var. *glabratus* (D.C. Eaton) H.M. Hall Utah Co., near Provo, Goodding 1111, 1902 (US!;NY!;BRY!;ISC!).
- Stipa arida* Jones Proc. Calif. Acad. II, 5: 725. 1895. Poaceae. Syn: *S. mormonum* Mez Piute Co., near Marysvale, Jones 5377, 1894 (POM!;RM!;US!;NY!).
- Stipa mormonum* Mez. Feddes Repert. 17: 209. 1921. Poaceae. = *S. arida* Jones Beaver Co., Milford, Jones 2106, 1880 (US!;frag;UT!;UTC!).
- Stipa parishii* var. *depauperata* Jones Contr. W. Bot. 14: 11. 1912. Poaceae. = *S. coronata* var. *depauperata* (Jones) A.S. Hitchc. Juab Co., Detroit, Jones, 1891 (US!).
- Stipa pinetorum* Jones Proc. Calif. Acad. II, 5: 724. 1895. Poaceae. Garfield Co., Panguitch Lake, Jones 6023, 1894 (POM!;US!).
- Streptanthus crassicaulis* Torr. in Stansbury Expl. Great Salt Lake, Append. D. Botany 383. 1852. Brassicaceae. = *Caulanthus crassicaulis* (Torr.) Wats. Tooele Co., w shore of Great Salt Lake, Stansbury sn, 1850 (NY!).
- Suaeda intermedia* Wats. Proc. Amer. Acad. 14: 296. 1879. Chenopodiaceae. Sevier Co., Glenwood, Ward 718, 1875 (US!).
- Swertia fritillaria* Rydb. Bull. Torrey Bot. Club 40: 465. 1913. Gentianaceae. = *S. perennis* L. Salt Lake Co., Big Cottonwood Canyon, Garrett 1566, 1905 (NY!;UT!).
- Synthesis laciniata* (Gray) Rydb. ssp. *ibahpensis* Pennell Proc. Acad. Nat. Sci. Philadelphia 85: 92. 1933. Scrophulariaceae. = *S. laciniata* (Gray) Rydb. Juab Co., Mt. Ibapah, Stanton 1000, 1932 (PH).
- Synthesis pinnatifida* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 227. 1871. Scrophulariaceae. Utah Co., American Fork Canyon, Watson 802, 1869 (US!;NY!).



*Synthesis pinnatifida* Wats. var. *laciniata* Gray Syn. Fl. N. Amer. 2(1): 286. 1878. Scrophulariaceae. = *S. laciniata* (Gray) Sevier Co., Fish Lake Mts., Ward 327, 1875 (US!).

*Tanacetum diversifolium* D.C. Eaton Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 180. 1871. Asteraceae. = *Sphaeromeria diversifolia* Rydb. Utah Co., American Fork Canyon, Watson 632, 1869 (US!).

*Tetradymia linearis* Rydb. Bull. Torrey Bot. Club 32: 130. 1905. Asteraceae. = *T. canescens* DC. Iron Co., Rock Creek, Palmer 264, 1877 (NY!).

*Tetradymia spinosa* H. & A. var. *longispina* Jones Proc. Calif. Acad. II, 5: 698. 1895. Asteraceae. = *T. axillaris* var. *longispina* Jones Washington Co., St. George, Jones 5110, 1894 (POM!;US!;NY!;BRY!).

*Tetranneuris epunctata* A. Nels. Bot. Gaz. 37: 275. 1904. Asteraceae. = *Hymenoxys acaulis* var. *caespitosus* (A. Nels.) Parker Uintah Co., Dyer Mine, Goodding 1236, 1902 (RM!;US!;UT!;NY!;BRY!;ISC!).

*Thalictrum duriusculum* Greene Leaf. Bot. Obs. & Crit. 2: 92. 1910. Ranunculaceae. = *T. alpinum* L. Sevier Co., near Fish Lake, Jones 5826a, 1894 (US!;POM!).

*Thelesperma subnudum* Gray Proc. Amer. Acad. 10: 72. 1874. Asteraceae. Washington Co., near St. George, Parry 109, 1874 (US!;NY!;ISC!;BRY!).

*Thelypodopsis argillacea* Welsh & Atwood Great Basin Naturalist 37: 95. 1977. Brassicaceae. Uintah Co., Big Pack Mountain, Atwood 6627, 1976 (BRY!).

*Thelypodopsis barnebyi* Welsh & Atwood in Welsh Brittonia 33: 300. 1981. Brassicaceae. Emery Co., San Rafael Swell, Welsh 20345, 1981 (BRY!;NY!;GH!;UTC!).

*Thelypodium elegans* Jones Zoe 4: 265. 1893. Brassicaceae. = *Thelypodopsis elegans* (Jones) Rydb. Grand Co., Westwater, Jones sn, 1891 (POM!;RM!;BRY!;NY!).

*Thelypodium macropetalum* Rydb. Bull. Torrey Bot. Club 29: 233. 1902. Brassicaceae. = *T. sagittatum* var. *sagittatum* Davis Co., Farmington, Jones 1841, 1881 (NY!;US!;CAS!;POM!;BRY!;UTC!).

*Thelypodium ovalifolium* Rydb. Bull. Torrey Bot. Club 30: 253. 1903. Brassicaceae. = *T. sagittatum* var. *ovalifolium* (Rydb.) Welsh & Reveal Garfield Co., Panquitch Lake, Jones 6015e, 1894 (US!;POM!;NY!).

*Thelypodium palmeri* Rydb. Bull. Torrey Bot. Club 34: 433. 1907. Brassicaceae. = *T. sagittatum* var. *ovalifolium* (Rydb.) Welsh & Reveal Washington Co., (s. Utah), Palmer 25, 1877 (NY!;US!;BRY!;ISC!).

*Thelypodium rollinsii* Al-Shehbaz Contr. Gray Herb. II, 204: 97. 1973. Brassicaceae. Juab Co., 12 mi n Scipio, I. & N. Al-Shehbaz 6913, 1969 (GH).

*Thelypodium sagittatum* (Nutt.) Endl. var. *vermicularis* Welsh & Reveal Great Basin Naturalist 37: 358. 1978. Brassicaceae. Sevier Co., 4 mi se Sigurd, Welsh & Atwood 11718, 1972 (BRY!).

*Thelypodium suffrutescens* Rollins in Graham Ann. Carnegie Mus. 26: 224. 1937. Brassicaceae. = *Glaucocarpum suffrutescens* (Rollins) Rollins Uintah Co., Big Pack Mtn, Graham 8959, 1935 (GH;CM!;NY!).

*Thelypodium utahense* Rydb. Bull. Torrey Bot. Club 29: 233. 1902. Brassicaceae. = *Caulanthus lasiophyllus* var. *utahensis* (Rydb.) Jeps. Washington Co., St. George, Jones 1648, 1880 (US!;UT!;POM!;NY!).

*Thelypodium wrightii* Gray var. *tenellum* Jones Proc. Calif. Acad. II, 5: 622. 1895. Brassicaceae. = *T. laxiflorum* Al-Shehbaz Utah Co., Slate Canyon, Jones 5559, 1894 (POM!;US!;CAS!;RM!;NY!).

*Thlaspi fendleri* Gray var. *tenuipes* Maguire Amer. Midl. Naturalist 24: 469. 1942. Brassicaceae. = *T. montanum* var. *montanum* Sanpete Co., Mayfield Canyon, Maguire 19998, 1940 (UTC!).

*Thlaspi prolixum* A. Nels. Amer. J. Bot. 32: 287. 1945. Brassicaceae. = *T. montanum* var. *montanum* Piute Co., Marysville, Jones 5374, 1894 (RM!;POM!).

*Thysanocarpus trichocarpus* Rydb. Bull. Torrey Bot. Club 30: 253. 1903. Brassicaceae. = *T. curvipes* Hook. Washington Co., Silver Reef, Jones 5163b, 1894 (US!).

*Tithonia argophylla* D.C. Eaton Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 423. 1871. Asteraceae. = *Enceliopsis argophylla* (D.C. Eaton) A. Nels. Washington Co., St. George, Palmer sn, 1877 (US!).

*Townsendia annua* Beaman Contr. Gray Herb. II, 183. 1907. Asteraceae. San Juan Co., 1.5 mi n. Bluff, Maguire 13509, 1936 (UTC!).

*Townsendia aprica* Welsh & Reveal Brittonia 20: 375. 1968. Asteraceae. Sevier Co., s. Fremont Jct., Reveal & Welsh 721, 1966 (BRY!;CAS!).

*Townsendia dejecta* A. Nels. Bot. Gaz. 37: 267. 1904. Asteraceae. = *T. montana* var. *montana* Uintah Co., Dyer Mine, Goodding 1283, 1902 (US!;RM!).

*Townsendia florifer* (Hook.) Gray var. *communis* Jones Proc. Calif. Acad. II, 5: 697. 1895. Asteraceae. = *T. florifer* (Hook.) Gray Piute Co., Kingston, Jones 5322f, 1894 (POM!;US!;BRY!).

*Townsendia incana* Nutt. var. *prolixa* Jones Contr. W. Bot. 13: 15. 1910. Asteraceae. = *T. strigosa* Nutt. Duchesne Co., Duchesne Valley, Jones 5323, 1908 (POM!;BRY!).

*Townsendia mensana* Jones Contr. W. Bot. 13: 15. 1910. Asteraceae. Duchesne Co., near Theodore, Jones sn, 1908 (POM!;BRY!).

*Townsendia mensana* Jones var. *jonesii* Beaman Contr. Gray Herb. II, 183: 88. 1957. Asteraceae. = *T. jonesii* (Beaman) Reveal Juab Co., Mammoth, Jones sn, 1910 (POM!;BRY!).

*Townsendia minima* Eastw. Leaf. W. Bot. 1: 206. 1936. Asteraceae. Garfield Co., Bryce Cyn., Eastwood & Howell 727, 1933 (CAS!).

*Townsendia montana* Jones Zoe 4: 262. 1893. Asteraceae. Syn: *T. dejecta* A. Nels. Salt Lake Co., Alta, above Flagstaff Mine, Jones sn, 1879 (POM!).

*Townsendia scapigera* var. *ambigua* Gray Proc. Amer. Acad. 16: 84. 1880. Asteraceae. = *T. florifer* (Hook.) Gray Wayne Co., Rabbit Valley, Ward 523, 1875 (US!).

*Townsendia watsonii* Gray Proc. Amer. Acad. 16: 84. 1880. Asteraceae. = *T. florifer* (Hook.) Gray Tooele Co., Stansbury Island, Watson 520, 1869 (US!).

*Toxicodendron longipes* Greene Leaf. Bot. Obs. & Crit. 1: 118. 1905. Anacardiaceae. = *T. rydbergii* (Small) Greene Sevier Co., s. Glenwood, Ward 212, 1875 (US!).

*Trifolium andersonii* Gray var. *friscanum* Welsh Great Basin Naturalist 38: 355. 1978. Fabaceae. Beaver Co., Grampian Hill, Peabody et al 406, 1976 (BRY!;NY!).

*Trifolium confusum* Rydb. Bull. Torrey Bot. Club 34: 46. 1907. Fabaceae. = *T. longipes* var. *pygmaeum* Gray Iron Co., near Cedar City, Parry 35, 1874 (NY!).

*Trifolium inaequale* Rydb. Bull. Torrey Bot. Club 34: 47. 1907. Fabaceae. = *T. parryi* var. *montanense* (Rydb.) Welsh Summit Co., Bear River Canyon, Watson 243, 1869 (NY!).

*Trifolium kingii* Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 59. 1871. Fabaceae. Summit Co., Parleys Park, Watson 239, 1869 (US!;NY!).

*Trifolium longipes* Nutt. var. *brachypus* Wats. Biblio. Index N. Amer. Bot. 264. 1878. Fabaceae. = *T. longipes* var. *pygmaeum* Gray Washington Co., near St. George, Palmer sn, 1870 (GH).

*Trifolium macilentum* Greene Pittonia 3: 223. 1897. Fabaceae. Washington Co., (s. Utah), Palmer sn, 1877 (US!;NY!).

*Trifolium uintense* Rydb. Bull. Torrey Bot. Club 34: 47. 1907. Fabaceae. = *T. dasyphyllum* var. *uintense* (Rydb.) Welsh Summit Co., Uintas, Watson 241, 1869 (NY!;US!).

*Trifolium villiferum* House Bot. Gaz. 41: 335. 1906. Fabaceae. = *T. eriocephalum* var. *villiferum* (House) Martin Washington Co., (s. Utah), Palmer 91, 1877 (US!;NY!;BRY!).

*Triglochin maritima* L. var. *debile* Jones Proc. Calif. Acad. II, 5: 722. 1895. Juncaginaceae. = *T. concinna* var. *debile* (Jones) Howell Kane Co., Johnson, Jones 5289, 1894 (US!;POM!).

*Valeriana puberulenta* Rydb. Bull. Torrey Bot. Club 36: 697. 1909. Valerianaceae. = *V. acutiloba* var. *pubicarpa* (Rydb.) Cronq. Piute Co., Bullion Creek, Rydberg & Carlton 7065, 1905 (NY!;US!;BRY!).

*Valeriana pubicarpa* Rydb. Bull. Torrey Bot. Club 36: 697. 1909. Valerianaceae. = *V. acutiloba* var. *pubicarpa* (Rydb.) Cronq. Juab Co., Mt. Nebo, Rydberg & Carlton 7717, 1905 (NY!;US!;RM!).

*Valeriana utahensis* Gandg. Bull. Soc. Bot. France 65: 37. 1908. Valerianaceae. = *V. acutiloba* var. *pubicarpa* (Rydb.) Cronq. Cache (?) Co., Linford sn, 1907 (?).

*Verbesina scaposa* Jones Zoe 2: 248. 1891. Asteraceae. = *Encliopsis nutans* (Eastw.) A. Nels. Grand Co., Cisco, Jones sn, 1890 (POM!;BRY!).

*Viguiera soliceps* Barneby Leaf. W. Bot. 10: 316. 1966. Asteraceae. = *Helimeris soliceps* (Barneby) Yates Kane Co., Cottonwood Canyon, Barneby 14435, 1966 (NY!;US!;UTC!).

*Vilfa depauperata* Torr. exHook. var. *filiformis* Thurb. in Wats. Rep. U.S. Geol. Explor. 40th Parallel, Bot. 5: 376. 1871. Poaceae. = *Muhlenbergia filiformis* (Thurb.) Rydb. Summit Co., Uinta Mts., Watson 1281, 1869 (US?).

*Viola beckwithii* T. & G. in Beckwith Rep. U.S. Explor. & Surv. R.R. Pacific 2: 119. 1855. Violaceae. Utah, between Salt Lake and Sierra Nevada, Beckwith sn, 1854(NY!).

*Viola beckwithii* T. & G. var. *cachensis* C.P. Sm. Muhlenbergia 7: 136. 1912. Violaceae. = *V. beckwithii* T. & G. Utah.

*Viola bellidifolia* Greene ssp. *valida* Baker Madroño 5: 223. 1940. Violaceae. = *V. adunca* J.E. Sm. Salt Lake Co., Brighton, Baker 8519, 1936 (UTC!).

*Viola bonnevillensis* Cottam Bull. Univ. Utah Biol. Ser. 3: 3. 1939. Violaceae. = *V. beckwithii* T. & G. Salt Lake Co., Salt Lake City, Cottam 7067, 1937 (UT!).

*Viola clauseniana* Baker Madroño 4: 194. 1938. Violaceae. = *V. nephrophylla* Greene Washington Co., Zion National Park, Baker 84348, 1936 (UC).

*Viola mamillata* Greene Leaf. Bot. Obs. & Crit. 2: 33. 1910. Violaceae. = *V. adunca* J.E. Sm. Uintah Co., Dyer Mine, Goodding 1202, 1902 (US!;RM!;UT!;BRY!).

*Viola oxysepala* Greene Leaf. Bot. Obs. & Crit. 2: 34. 1910. Violaceae. = *V. adunca* J.E. Sm. Sanpete Co., inter Willow & Ephriam creeks, Tidestrom 2476, 1909 (NDG!).

*Viola tidestromii* Greene Leaf. Bot. Obs. & Crit. 2: 234. 1910. Violaceae. = *V. adunca* J.E. Sm. Sanpete Co., Ephriam Creek, Tidestrom 1143, 1908 (NDG!).

*Viola utahensis* Baker & Clausen Leaf. W. Bot. 5: 145. 1949. Violaceae. = *V. purpurea* Kellogg Cache Co., Providence Canyon, Maguire 16026, 1937 (UTC; US!;NY!;UTC!).

*Whipplea utahensis* Wats. Amer. Naturalist 7: 300. 1873. Saxifragaceae. = *Fendlerella utahensis* (Wats.) Heller Kane Co., Kanab, Thompson 243. 1872 (US!).

*Wyethia scabra* Hook. var. *attenuata* W.A. Weber Amer. Midl. Naturalist 35: 425. 1946. Asteraceae. Kane Co., 10.5 mi n Kanab, Carter 1424, 1938 (WS).

*Wyethia scabra* Hook. var. *canescens* W.A. Weber Amer. Midl. Naturalist 35: 425. 1946. Asteraceae. San Juan Co., s Mexican Hat, Goodman & Hitchcock 1352, 1930 (CAS!;RM!;NY!).

*Wyomingia vivax* A. Nels. Bot. Gaz. 56: 70. 1913. Asteraceae. = *Erigeron utahensis* var. *sparsifolius* (Eastw.) Cronq. San Juan Co., Geysers Canyon, Walker 355, 1912 (US!).

*Xanthocephalum petradoria* Welsh & Goodrich in Welsh Brittonia 33: 301. 1981. Asteraceae. Millard Co., Canyon Mts., Goodrich 15240, 1980 (BRY!;ASU!;GH!;M0!;NY!;RM!;TEX!;UC!;US!;UT!).

*Xylophacos aragaloides* Rydb. Bull. Torrey Bot. Club 34: 48. 1907. Fabaceae. = *Astragalus amphioxys* var. *amphioxys* Washington Co., St. George, Jones 1633, 1880 (NY!;POM!;ISC!).

*Xylophacos marianus* Rydb. Bull. Torrey Bot. Club 52: 233. 1925. Fabaceae. = *Astragalus marianus* (Rydb.) Barneby Piute Co., Marysvale, Jones 5355, 1894 (NY!;US!;POM!).

*Xylophacos medius* Rydb. Bull. Torrey Bot. Club 52: 232. 1925. Fabaceae. = *Astragalus eurekaensis* Jones Tooele Co., Lake Point, Jones 1743, 1880 (US!;CAS!;POM!;BRY!;NY!;UT!).

*Xylophacos melanocalyx* Rydb. Bull. Torrey Bot. Club 52: 149. 1925. Fabaceae. = *Astragalus amphioxys* var. *amphioxys* Washington Co., Beaverdam Mts., Jones 5009, 1894 (NY!).

*Xylophacos uintensis* Rydb. Bull. Torrey Bot. Club 32: 662. 1905. Fabaceae. = *Astragalus argophyllus* var. *argophyllus* Salt Lake Co., Salt Lake V., Jones 1633b, 1880 (POM!).

*Xylorhiza cronquistii* Welsh & Atwood in Welsh Brittonia 33: 302. 1981. Asteraceae. Kane Co., Horse Mt., Welsh & Welsh 12819, 1975 (BRY!).

*Xylorhiza glabriuscula* Nutt. var. *linearifolia* T.J. Watson Brittonia 29: 215. 1977. Asteraceae. Grand Co., 6 mi nw Moab, Watson 679, 1971 (TEX; COLO;GH;MP;MONTU;NY!;UC).

*Xylorhiza lanceolata* Rydb. Bull. Torrey Bot. Club 37: 146. 1910. Asteraceae. = *X. tortifolia* var. *tortifolia* Washington Co., St. George, Palmer 208, 1877 (NY!;US!).

*Yucca angustissima* Engelm. var. *avia* Reveal Intermountain Fl. 6: 534. 1977. Liliaceae. Piute (?) Co., Loa Pass, Jones 5639a. 1898 (US!).

*Yucca harrimaniae* Trel. Rep. Missouri Bot. Gard. 13: 59. 1902. Agavaceae. Syn: *Y. harrimaniae* var. *gilbertiana* Trel. Carbon Co., Helper, Trelease 3233, 1889 (MO!).

*Yucca harrimaniae* Trel. var. *gilbertiana* Trel. Rep. Missouri Bot. Gard. 18: 225. 1907. Agavaceae. = *Y. harrimaniae* Trel. Juab Co., Fish Springs or House Range, Gilbert sn, 1901 (US!).

*Yucca kanabensis* McKelvey *Yuccas* S.W. U.S. 2: 122. 1947. Agavaceae. Syn: *Y. angustissima* var. *kanabensis* (McKelvey) Reveal Kane Co., between Mt. Carmel & Kanab, McKelvey 4347a, 1934 (A).

*Yucca toftiae* Welsh Great Basin Naturalist 34: 308. 1974. Agavaceae. Syn: *Y. angustissima* var. *toftiae* (Welsh) Reveal San Juan Co., Lake Powell, Welsh 11935a. 1973 (BRY!NY!).

*Yucca utahensis* McKelvey *Yuccas* S.W. U.S. 2: 94. 1947. Agavaceae. Syn: *Y. elata* var. *utahensis* (McKelvey) Reveal Washington Co., Santa Clara V., McKelvey 4167, 1934 (A).

*Zauschneria garrettii* A. Nels. Proc. Biol. Soc. Washington 20: 36. 1907. Onagraceae. = *Epilobium canum* (Greene) Raven Salt Lake Co., Big Cottonwood Canyon, Garrett 2031, 1906 (UT!).

## BIBLIOGRAPHY

- AL-SHEHBAZ, I. A. 1973. The biosystematics of the genus *Thelypodium* (Cruciferae). Contr. Gray Herb. 11, 204: 3-148.
- ANDERSON, L. C. 1981. *Chrysothamnus nauscosus* ssp. *iridis* (Asteraceae): a new endemic from Utah. Great Basin Naturalist 41(3): 311-313.
- ATWOOD, N. D. 1972. New species in the *Phacelia crenulata* group (Hydrophyllaceae). Rhodora 74: 451-463.
- . 1973. Two new species of *Phacelia* (Hydrophyllaceae). Phytologia 26: 437-438.
- BAILEY, L. H. 1884. Notes on Carex—I. Bot. Gaz. 9:117-122.
- BAKER, M. S. 1938. An undescribed species of *Viola* from Utah. Madrono 4: 194-196.
- . 1940. Studies in western violets—III. Madrono 5: 218-231.
- BAKER, M. S. AND J. CLAUSEN. 1949. Studies in western Violets—IV. Leaflet. W. Bot. 5: 141-156.
- BALL, C. R. 1921. Undescribed willows of the section Cordatae. Bot. Gaz. 71: 426-437.
- BARKLEY, T. M. 1962. A revision of *Senecio aureus* Linn. and allied species. Trans. Kansas Acad. Sci. 65: 318-408.
- BARNEBY, R. C. 1943. Miscellaneous diagnoses. Leaflet. W. Bot. 3: 193-199.
- . 1944. Alice Eastwood semi-centennial publications No. 3. Pugillus Astragalorum Alter. Proc. Calif. Acad. IV, 25:147-169.
- . 1945. Pugillus Astragalorum—IV: The section Diplocystium. Leaflet. W. Bot. 4: 65-147.
- . 1946. Pugillus Astragalorum—V. Leaflet. W. Bot. 4: 228-238.
- . 1947. Pugillus Astragalorum—VI: Notes on section Drabellae. Leaflet. W. Bot. 5: 1-9.
- . 1947. Pugillus Astragalorum—VII: A revision of the Argophylli. Amer. Midl. Naturalist 37: 421-451.
- . 1949. Pugillus Astragalorum—X: New species, varieties and combinations. Amer. Midl. Naturalist 41: 496.
- . 1949. *Eriogonum villiflorum* and its near relatives in the Great Basin. Leaflet. W. Bot. 5: 151-154.
- . 1952. A revision of the North American species of *Oxytropis*. DC. Proc. Calif. Acad. IV, 27: 177-312.
- . 1953. Pugillus Astragalorum—XV: Four new species. Leaflet. W. Bot. 7: 31-37.
- . 1954. Pugillus Astragalorum—XVI: Minor novelities from Nevada. Leaflet. W. Bot. 7: 192-196.
- . 1956. Pugillus Astragalorum—XVII: Four new species and one variety. Leaflet. W. Bot. 8: 14-23.
- . 1964. Atlas of North American *Astragalus*. Mem. N.Y. Bot. Garden 13: 1-1188.
- . 1966. New sorts of *Lesquerella*, *Euphorbia*, and *Viguiera* from Kane County, Utah. Leaflet. W. Bot. 10: 313-317.
- BARNEBY, R. C., AND N. H. HOLMGREN. 1979. A new species of *Lomatium* (Apiaceae) from Utah. Brittonia 31: 96-100.
- BEAL, W. J. 1896. Grasses of North America. Vol. 2. New York, Henry Holt and Company.
- BEAMAN, J. H. 1957. The systematics and evolution of *Townsendia* (Compositae). Contr. Gray Herb. 11, 183: 1-151.
- BECKWITH, E. G. 1855. Reports of explorations and surveys, to ascertain the most practicable and economical route for a railroad from the Mississippi River to the Pacific Ocean. House Rep. Exec. Doc., Vol 2, No. 91.
- BENSON, L. 1948. A treatise on the North American Ranunculii. Amer. Midl. Naturalist 40: 1-264.
- . 1966. A revision of *Scleroactus*. Cact. & Succ. J. (Los Angeles) 38: 50-57, 100-106.
- . 1969. The cacti of the United States and Canada—new names and nomenclatural combinations—I. Cact. & Succ. J. (Los Angeles) 41: 124-28.
- . 1969. The cacti of Arizona. Ed. 3, Tucson. University of Arizona Press. 218 pp.
- BENTHAM, G. 1856. *Eriogonum confertiflorum* var. *stansburyi*. Page 17 in A. P. de Candolle. Prodrum Systematis Naturalis Regni Vegetabilis. Vol. 14.
- BICKNELL, E. P. 1901. Studies in *Sisyrinchium*—IX: the species of Texas and the Southwest. Bull. Torrey Bot. Club 28: 570-592.
- BLAKE, S. F. 1922. New Asteraceae from Utah and Nevada. Proc. Biol. Soc. Washington 35: 173-177.
- . 1931. Nine new American Asteraceae. J. Washington Acad. Sci. 21: 325-336.



- . 1935. Five new plants of the genus *Aplopappus*. Proc. Biol. Soc. Washington 48: 169-174.
- . 1937. Eleven new Asteraceae from North and South America. J. Washington Acad. Sci. 27: 374-391.
- BLAUER, H. C. 1965. *Helianthus* (Compositae) in Utah. Proc. Utah Acad. 42: 241-251.
- BRAND, A. 1907. Polemoniaceae. Pflanzenr. 4, Fam. 250 (Heft 27): 1-203.
- . 1911. Beitrag zur Kenntnis der Hydrophyllaceae.
- BRANDEGEE, M. K. 1900. *Opuntias*. Pages 97,110,120 in J. A. Purpus, Die Succulenten der La Sal Mountains in Utah. Monats. Kakteenk. 10: 95-120.
- BRENCKLE, J. F., AND W. P. COTTAM. 1940. A new *Polygonum* from Garfield County, Utah. Bull. Univ. Utah 30: 2-7.
- BRITTON, N. L. 1904. Four new North American birches. Bull. Torrey Bot. Club 31: 165-166.
- BRITTON, N. L., AND J. N. ROSE. 1920. Cactaceae. Vol. 1 & 4, Carnegie Inst. Washington Publ. 248. 80 pp.
- BRITTON, N. L., AND J. A. SHAFER. 1908. North American Trees. New York. Henry Holt and Company. 894 pp.
- BROADDUS, M. J. 1935. Biographical sketch of Marcus E. Jones. Contr. W. Bot. 18: 132.
- . 1952?. VI. Anna Elizabeth (Richardson) Jones, 1853-1916 (Anna). Pages 48-51 in A. J. Jones, Publius Virgilius and Lavinia (Burton) Jones and their family—1800-1950. Published by the family; without locality indicated.
- BUCHENAU, F. G. P. 1890. *Juncus canadensis* var. *kuntzei*. Bot. Jahrb. 12: 272.
- CANDOLLE, A. P. DE 1864. *Quercus stellata* var. *utahensis*. Prodrromus Systematis naturalis Regni vegetabilis. Vol. 16. Parisiis. 160 pp.
- CHAMBERLAIN, R. V. 1950. Life Sciences at the University of Utah. Background and History. Deseret News Press; Salt Lake City. 417 pp.
- CHAUDHRI, M. N. 1968. Revision of *Paronychia*. 194.
- CHUANG, T. I., AND L. R. HECKARD. 1973. Taxonomy of *Cordylanthus* subgenus *Hemistegia* (Scrophulariaceae). Brittonia 25: 135-158.
- CLOVER, E. U. 1938. The Cactaceae of southern Utah. Bull. Torrey Bot. Club 65: 397-412.
- CLOVER, E. U., AND L. JOTTER. 1941. Cacti of the canyon of the Colorado River and tributaries. Bull. Torrey Bot. Club 68: 409-419.
- COCKERELL, T. D. 1904. A North American species of *Hymenoxys*. Bull. Torrey Bot. Club 31: 461-509.
- COOLEY, E. L. 1980. Diary of Brigham Young 1857. University of Utah Library. 105 pp.
- COTTAM, W. P. 1939. A new violet from Utah. Bull. Univ. Utah Biol. Ser. 4 (3). 8 pp.
- COULTER, J. M. 1896. Preliminary revision of the North American species of *Echinocactus*, *Cereus* and *Opuntia*. Contr. U.S. Natl. Herb. 3: 355-462.
- COULTER, J. M., AND A. NELSON. 1909. New manual of botany of the central Rocky Mountains. New York. American Book Co. 646 pp.
- COULTER, J. M., AND J. N. ROSE 1888. Revision of North American Umbelliferae. Crawfordsville. 144 pp.
- . 1900. Monograph of the North American Umbelliferae. Contr. U.S. Natl. Herb. 7: 7-256.
- . 1909. Supplement to the monograph of the North American Umbelliferae. Contr. U.S. Natl. Herb. 12: 441-451.
- COVILLE, F. V. 1892. Descriptions of new plants from southern California, Utah and Arizona. Proc. Biol. Soc. Washington 7: 65-80.
- . 1893. Botany of the Death Valley Expedition. Contr. U.S. Natl. Herb. 4: 1-363.
- CRONQUIST, A. 1943. The North American species of *Erigeron* centering about *E. speciosus* (Lindl.) DC. and *E. glabellus* Nutt. Bull. Torrey Bot. Club 70: 265-274.
- . 1947. Revision of the North American species of *Erigeron*, north of Mexico. Brittonia 6: 121-302.
- . 1963. Two new varieties in *Machaeranthera*. Leafl. W. Bot. 10: 11m13.
- CRONQUIST, A., A. HOLMGREN, N. H. HOLMGREN, J. L. REVEAL, AND P. K. HOLMGREN. 1977. Intermountain Flora. Vol. 6. New York, Columbia Univ. Press. 584 pp.
- DARLINGTON, J. 1934. A monograph of the genus *Mentzelia*. Ann. Missouri Bot. Garden 21: 103m226.
- DASTON, J. S. 1946. Three noteworthy cacti of southwestern Utah. Amer. Midl. Naturalist 36: 661m662.
- DEMPSTER, L. T., AND F. EHRENDORFER. 1965. Evolution of the *Galium multiflorum* complex in western North America—II. Critical taxonomic revision. Brittonia 17: 289m334.
- DURAND, E. M. 1860. A sketch of the botany of the basin of the Great Salt Lake of Utah. Trans. Amer. Phil. Soc. 11: 155m180.
- EARLE, H. W. 1980. A new *Opuntia* identified in southwestern Utah. Saguaroland Bull. 34: 15.
- EASTWOOD, A. 1893. List of plants collected in southeastern Utah, with notes and descriptions of new species. Zoe 4: 113-127.
- . 1895. Two species of *Aquilegia* from the upper Sonoran zone of Colorado and Utah. Proc. Calif. Acad. II, 4: 559-562.
- . 1896. Report on a collection of plants from San Juan County, in southeastern Utah. Proc. Calif. Acad. II, 6: 270-329.
- . 1903. New species of *Oreocarya*. Bull. Torrey Bot. Club 30: 238-246.
- . 1903. New species of western plants. Bull. Torrey Bot. Club 30: 483-502.
- . 1904. Some new species of western Polemoniaceae. Bot. Gaz. 37: 437-447.
- . 1927. New species of *Ceanothus*. Proc. Calif. Acad. 16: 361-363.
- . 1933. Two new species of western *Galium*. Leafl. W. Bot. 1: 55-56.
- . 1936. A new *Townsendia* from Utah. Leafl. W. Bot. 1: 206-207.
- . 1937. New species of *Dodecatheon*. Leafl. W. Bot. 2: 36-38.
- . 1937. New species of western plants. Leafl. W. Bot. 2: 54-56.
- . 1941. New species of *Castilleja*. Leafl. W. Bot. 3: 87-92.
- . 1942. New western plants IV. Leafl. W. Bot. 3: 157-160.
- . 1942. New species and varieties of *Lupinus*. Leafl. W. Bot. 3: 169-192.

- EATON, D. C. 1871. Compositae. Pages 136-208 in S. Watson, Botany. Report of U.S. Geological Exploration of the Fortieth Parallel. 5: Xiii-525. Washington: Government Printing Office.
- . 1875. *Notholeana parryi*. Amer. Naturalist 9: 351.
- EHRENDORFER, F. 1956. Survey of the *Galium multiflorum* complex in western North America. Contr. Dudley Herb. 5: 3-21.
- ENGELMANN, G. 1863. Additions to the cactus-flora of the territory of the United States. Trans. Acad. Sci. St. Louis 2: 199.
- . 1871. Yucca and Agave. Page 497 in S. Watson, Botany. Report of U.S. Geological Exploration of the Fortieth Parallel. Bot. 5: xiii-525. Washington: Government Printing Office..
- . 1878. American junipers of section Sabina. Trans. St. Louis Acad. Science 3: 588-589.
- . 1896. *Opuntia*. Pages 423-24 in J. M. Coulter, Preliminary revision of the North American species of *Echinocactus*, *Cereus*, and *Opuntia*. Contr. U.S. Natl. Herb. 3: 357-462.
- ENGLER, H. G., AND E. IRMSCHER. 1916. Saxifragaceae—*Saxifraga*. Pflanzenz. 4. Fam. 117 (Heft 67 & 69):1-707.
- EWAN, J. 1950. Rocky Mountain Naturalists. The University of Denver Press. 358 pp.
- FEDDE, F. K. G. 1909. *Platystemon*. Pflanzenz. 4. Fam. 104. (Heft 40): 106-131.
- FEDDE, F. K. 1913. Neue Arten aus der Verwandtschaft der *Corydalis aurea* Willd. von Nord Amerika - VIII. Feddes Repert. 11: 497.
- FLOUS, F. 1934. Diagnoses d' especes et varietes nouvelles de *Pseudotsuga* americains. Bull. Soc. Hist. Nat. Toulouse 66: 329-346.
- FLOWERS, S. 1949. A new *Selaginella* from southwestern Utah. Amer. Fern J. 39: 83-86.
- FREMONT, J. C. 1845. Report of the exploring expedition to the Rocky Mountains in the year 1842, and to Oregon and north California in the years 1843-1844. House Rep. Doc. 199.
- GABEL, M. L. 1981. The Parry herbarium. Proc. Iowa Acad. Sci. 88: 179.
- GANDOGER, M. 1906. Le genre *Eriogonum* (Polygonaceae). Bull. Soc. Bot. Belgium 42: 183-200.
- . 1918. Sertum plantarum novarum. Pars prima. Bull. Soc. Bot. France 65: 24-69.
- . 1919. Sertum plantarum novarum. Bull. Soc. Bot. France 66: 216-233.
- . 1920. Sertum plantarum novarum. Bull. Soc. Bot. France 66: 286-307.
- GARRETT, A. O. 1917. Spring flora of the Wasatch region. 3rd Ed., Lancaster Press: Salt Lake City. 144 pp.
- GATES, R. R. 1915. The mutation factor in evolution, with particular reference to *Oenothera*. London, MacMillan and Co. 353 pp.
- GENTRY, J. L. 1974. Studies in the genus *Hackelia* (Boraginaceae) in the western United States and Mexico. Southwestern Naturalist 19: 139-146.
- GOODING, L. N. 1904. Southwestern plants. Bot. Gaz. 37: 53-59.
- GOODMAN, G. J. AND C. L. HITCHCOCK. 1932. A new sea-pose *Draba* from Utah. Ann. Missouri Bot. Gard. 19: 77-78.
- GOULD, F. W. 1942. A systematic treatment of the genus *Camassia* Lindl. Amer. Midl. Naturalist 28: 712-742.
- GRAHAM, E. H. 1937. Botanical studies in the Uinta Basin of Utah and Colorado. Ann. Carnegie Mus. 26: 1-432.
- GRAY, A. 1849. Plantae Fendlerianae Novi-Mexicanae. Mem. Amer. Acad. 4: 1-116.
- . 1852. Plantae Wrightianae Texano-Neo-Mexicanae. Part 1. Smithsonian Contr. Knowl. 3: 5-146.
- . 1870. Revision of the North American Polemoniaceae. Proc. Amer. Acad. 8: 247-282.
- . 1870. Miscellaneous botanical notes and characters. Proc. Amer. Acad. 8: 282-296.
- . 1872. Botanical contributions. Proc. Amer. Acad. 8: 365-412.
- . 1873. Characters of new genera and species of plants. Proc. Amer. Acad. 8: 620-661.
- . 1874. Notes on Compositae and characters of certain genera and species. Proc. Amer. Acad. 9: 187-218.
- . 1874. Contributions to the botany of North America. Proc. Amer. Acad. 10: 39-78.
- . 1875. A conspectus of the North American Hydrophyllaceae. Proc. Amer. Acad. 10: 312-332.
- . 1876. Miscellaneous botanical contributions. Proc. Amer. Acad. 11: 71-104.
- . 1876. Contributions to the botany of North America—V. Proc. Amer. Acad. 12: 51-84.
- . 1876. Geological survey of California. Botany. Vol. 1. ed. 1.
- . 1878. Synoptical flora of North America. Vol. II - Part 1. New York: Ivison, Blakeman, Taylor and Co. 402 pp.
- . 1878. Contributions to the botany of North America. Proc. Amer. Acad. 13: 361-374.
- . 1880. Geological survey of California. Botany. Vol. 1. 628 pp.
- . 1880. Contributions to North American botany. Proc. Amer. Acad. 16: 78-108.
- . 1883. Contributions to North American botany. Proc. Amer. Acad. 19: 1-96.
- . 1884. Synoptical flora of North America. Vol. 1. Part 2. New York: Ivison, Blakeman, Taylor, and Co. 473 pp.
- . 1885. A revision of some Boragineous genera. Proc. Amer. Acad. 20: 257-286.
- . 1886. Contributions to American botany. Proc. Amer. Acad. 13: 363-413.
- . 1886. Synoptical flora of North America. Vol. 1. Ed. 2. Washington: Smithsonian Institution. 480 pp.
- . 1889. John Torrey. p. 359-369 in C. S. Sargent, Scientific papers of Asa Gray. Vol. 2. Essays; Biographical sketches. 1841-1886. Macmillan and Co.; London. 503 pp.
- GREENE, E. L. 1896. New or noteworthy species—XVII. Pittonia 3: 91-116.
- . 1896. Studies in the Cruciferae—1. Pittonia 3: 117-138.
- . 1897. Some Rocky Mountain asters. Pittonia 3: 212-224.
- . 1899. New or noteworthy species—XXIV. Pittonia 4: 68-72.

- \_\_\_\_\_. 1899. West American *Asperifoliae*—IV. *Pittonia* 4: 86–97.
- \_\_\_\_\_. 1900. A fascicle of *Senecios*. *Pittonia* 4: 108–124.
- \_\_\_\_\_. 1900. A fascicle of new *Arnicas*. *Pittonia* 4: 159–174.
- \_\_\_\_\_. 1901. New or noteworthy species—XXVIII. *Pittonia* 4: 233–241.
- \_\_\_\_\_. 1903. *Platystemon* and its allies. *Pittonia* 5: 139–194.
- \_\_\_\_\_. 1905. A proposed new genus, *Annotites*. *Leafl. Bot. Obs. & Crit.* 1: 97–112.
- \_\_\_\_\_. 1905. Segregates of the genus *Rhus*. *Leafl. Bot. Obs. & Crit.* 1: 114–144.
- \_\_\_\_\_. 1905. New species of *Penstemon*. *Leafl. Bot. Obs. & Crit.* 1: 161–176.
- \_\_\_\_\_. 1905. Revision of *Eschscholtzia*. *Pittonia* 5: 205–293.
- \_\_\_\_\_. 1905. Diagnoses Aragalorum. *Proc. Biol. Soc. Washington* 18: 11–18.
- \_\_\_\_\_. 1906. The genus *Ptelea* in the western and southwestern United States and Mexico. *Contr. U.S. Natl. Herb.* 10: 49–78.
- \_\_\_\_\_. 1906. A study of *Rhus glabra*. *Proc. Washington Acad.* 8: 167–196.
- \_\_\_\_\_. 1908. *Novitates borealis Americanae*—II. *Feddes Repert.* 5: 241–244.
- \_\_\_\_\_. 1909. New western Asteraceae. *Leafl. Bot. Obs. & Crit.* 2: 8–13.
- \_\_\_\_\_. 1910. Some western caulescent violets. *Leafl. Bot. Obs. & Crit.* 2: 32–34.
- \_\_\_\_\_. 1910. Miscellaneous specific types—I. *Leafl. Bot. Obs. & Crit.* 2: 45–48.
- \_\_\_\_\_. 1910. Some western species of *Arabis*. *Leafl. Bot. Obs. & Crit.* 2: 69–88.
- \_\_\_\_\_. 1910. Studies of Thalictraceae—II. *Leafl. Bot. Obs. & Crit.* 2: 89–94.
- \_\_\_\_\_. 1912. New species of *Chaenactis*. *Leafl. Bot. Obs. & Crit.* 2: 221–225.
- \_\_\_\_\_. 1912. *Novitates borealis Americanae*—VI. Species novae generis *Cercidis*. *Feddes Repert.* 11: 108–111.
- GREENMAN, J. M. 1914. Descriptions of North American Senecioneae. *Ann. Missouri Bot. Gard.* 1: 263–290.
- \_\_\_\_\_. 1916. Monograph of the North and Central American species of the genus *Senecio*. Part II. *Ann. Missouri Bot. Gard.* 3: 85–194.
- \_\_\_\_\_. 1917. Monograph of the North and Central American species of the genus *Senecio*. Part II. *Ann. Missouri Bot. Gard.* 4: 15–36.
- GREENMAN, J. M., AND E. M. F. ROUSH. 1929. New *Agaves* from southwestern United States. *Ann. Missouri Bot. Gard.* 16: 389–392.
- HACKEL, E. 1896. *Festuca dasyclada*. Page 602 in W. J. Beal, *Grasses of North America* Vol. 2. New York, Henry Holt and Company.
- HALL, H. M., AND F. E. CLEMENTS. 1923. The phylogenetic method in Taxonomy. The North American species of *Artemisia*, *Chrysothamnus*, and *Atriplex*. Carnegie Institution of Washington. 355 pp.
- HANKS, L. T. AND J. K. SMALL. 1907. Geraniaceae. *N. Amer. Fl.* 25: 3–24.
- HANSON, C. A. 1962. New species of perennial *Atriplex* from the western United States. *Stud. Syst. Bot. (BRY)* 1: 1–4.
- HEIL, K. 1979. Three new species of Cactaceae from southeastern Utah. *Cact. & Succ. J. (U.S.)* 51: 25–30.
- HEIMERL, A. 1902. *Abronia fallax*. Page 684 in P. A. Rydberg, *Studies on the Rocky Mountain Flora*—IX. *Bull. Torrey Bot. Club* 29: 680–693.
- HEISER, C. B. 1961. A new annual sunflower, *Helianthus deserticolus*, from the southwestern United States. *Proc. Indiana Acad. Sci.* 70: 209–212.
- HELLER, A. A. 1905. Western species, new and old—IV. *Muhlenbergia* 1: 111–118.
- HERMANN, F. J. 1934. A new *Cardamine* from the Uinta Mountains, Utah. *Rhodora* 36: 409–412.
- \_\_\_\_\_. 1937. Extensions of range and a new species in *Carex*. *Rhodora* 39: 492–495.
- HIGGINS, L. C. 1968. New species of perennial *Cryptantha* from Utah. *Great Basin Naturalist* 28: 195–198.
- HITCHCOCK, A. S. 1933. New species and new names of grasses from Texas. *J. Washington Acad. Sci.* 23: 449–456.
- HITCHCOCK, C. L. 1941. A revision of the *Drabas* of western North America. *Univ. Washington Publ. Biol.* 11: 1–120.
- \_\_\_\_\_. 1950. On the subspecies of *Lepidium montanum*. *Madrono* 10: 155–158.
- \_\_\_\_\_. 1952. A revision of the North American species of *Lathyrus*. *Univ. Washington Publ. Biol.* 15: 1–104.
- HITCHCOCK, C. L., AND B. MAGUIRE. 1947. A revision of the North American species of *Silene*. *Univ. Washington Publ. Biol.* 13: 1–73.
- HOLM, T. H. 1891. A study of some anatomical characters of North American Gramineae—III. *Bot. Gaz.* 16: 275–281.
- HOLMGREN, A. H., L. M. SHULTZ, AND T. K. LOWREY. 1976. *Sphaeromeria*, a genus closer to *Artemisia* than to *Tanacetum* (Asteraceae: Anthemideae). *Brittonia* 28: 255–262.
- HOLMGREN, N. H. 1973. Five new species of *Castilleja* (Scrophulariaceae) from the Intermountain Region. *Bull. Torrey Bot. Club* 100: 83–93.
- \_\_\_\_\_. 1978. Three new species of *Penstemon* (Scrophulariaceae) from the Intermountain region. *Brittonia* 30: 416–425.
- \_\_\_\_\_. 1979. New *Penstemons* (Scrophulariaceae) from the Intermountain region. *Brittonia* 31: 217–242.
- HOLMGREN, N. H., AND A. H. HOLMGREN. 1974. Three new species from the Great Basin. *Brittonia* 26: 309–315.
- HOLMGREN, N. H., AND P. K. HOLMGREN. 1979. A new species of *Asclepias* (Asclepiadaceae) from Utah. *Brittonia* 31: 110–114.
- HOPKINS, M. 1937. *Arabis* in eastern and central North America. *Rhodora* 39: 106–148.
- HOUSE, H. D. 1906. New and noteworthy North American species of *Trifolium*. *Bot. Gaz.* 41: 334–347.
- HOWELL, J. T. 1940. New western Plants. *Leafl. W. Bot.* 2: 253.
- \_\_\_\_\_. 1943. Studies in *Phacelia*—a revision of species related to *P. pulchella* and *P. rotundifolia*. *Amer. Midl. Naturalist* 29: 1–26.
- IVES, J. C. 1860. Report upon the Colorado River of the west. Washington D.C. C. Wendell, Printers.



- JOHNSTON, I. M. 1923. Diagnoses and notes relating to the spermatophytes chiefly of North America. *Contr. Gray Herb.* II, 68: 80-104.
- . 1937. Studies in the Boraginaceae—XII. *J. Arnold Arb.* 18: 1-25.
- . 1939. Studies in the Boraginaceae—XIII. *J. Arnold Arb.* 20: 375-402.
- . 1948. Studies in the Boraginaceae—XVI. Species chiefly from Mexico and western United States. *J. Arnold Arb.* 29: 227-241.
- . 1952. Studies in the Boraginaceae—XXII. Note-worthy species, chiefly Asian and South American. *J. Arnold Arb.* 33: 62-78.
- JONES, A. J., AND M. J. BROADDUS. 1952?. V. Marcus Eugene Jones, 1852-1934 (Mark). In A. J. Jones, Publius Virgilius and Lavinia (Burton) Jones and their family—1800-1950. Published by the family; without locality designated.
- JONES, M. E. 1881. Notes from Utah. *Bull. Torrey Bot. Club* 8: 70-71.
- . 1891. New plants from Arizona, Utah and Nevada. *Zoe* 2: 12-17.
- . 1891. New species and notes of Utah plants. *Zoe* 2: 236-252.
- . 1893. Contributions to western botany, No. 3. *Zoe* 3: 283-309.
- . 1893. Contributions to western botany, No. 4. *Zoe* 4: 22-54.
- . 1893. Contributions to western botany, No. 5. *Zoe* 4: 254-282.
- . 1894. Contributions to western botany, No. 6. *Zoe* 4: 366-369.
- . 1895. Contributions to western botany, No. 7. *Proc. Calif. Acad.* II, 5: 611-733.
- . 1898. Contributions to western botany, No. 8. *Contr. W. Bot.* 8: 1-43.
- . 1902. Contributions to western botany, No. 10. *Contr. W. Bot.* 10: 1-90.
- . 1903. Contributions to western botany, No. 11. *Contr. W. Bot.* 11: 1-22.
- . 1908. Contributions to western botany, No. 12. *Contr. W. Bot.* 12: 1-97.
- . 1910. New species and notes. *Contr. W. Bot.* 13: 1-87.
- . 1912. Contributions to western botany, No. 14. *Contr. W. Bot.* 14: 1-52.
- . 1923. Revision of North American species of *As-tragalus*. Salt Lake City; by the author. 288 pp.
- . 1929. Contributions to western botany, No. 15. *Contr. W. Bot.* 15: 1-163.
- . 1930. Contributions to western botany, No. 16. *Contr. W. Bot.* 16: 1-53.
- . 1933. Contributions to western botany, No. 18. New species and notes. *Contr. W. Bot.* 18: 20-130.
- KEARNEY, T. H. 1898. Studies on American grasses. Revision of North American species of *Calamogrostis*. U.S.D.A. *Agrostol. Bull.* 11: 1-62.
- KECK, D. D. 1934. A new *Penstemon* from Utah. *Leafl. W. Bot.* 1: 82-83.
- . 1937. Studies in *Penstemon*—IV. The section *Eri-copsis*. *Bull. Torrey Bot. Club* 64: 357-381.
- . 1937. Studies in *Penstemon*—V. The section *Pel-tanthera*. *Amer. Midl. Naturalist* 18: 790-829.
- . 1940. Studies in *Penstemon*—VII. The subsections *Gairdneriani*, *Deusti*, and *Arenarii* of the *Graciles*, and miscellaneous new species. *Amer. Midl. Naturalist* 23: 594-616.
- KLEIN, W. 1962. New taxa and recombinations in *Oenothera* (Anogra). *Aliso* 5: 179-180.
- KOEHNE, B. A. E. 1890. *Amelanchier utahensis*. *Wiss. Bei. Progr. Falk-Realgym. Berl.* 95: 25.
- KUNTZE, C. E. O. 1885. Monographie der Gattung *Clematis*. *Verh. Bot. Ver. Brandenb.* 26: 84-202.
- . 1891-95. *Revisio generum plantarum*. Vol. I & II. Leipzig, 1011 pp.
- LEVELLE, H. 1908. Monographie du genre *Oenothera*. *Bull. Acad. Internat. Geogr. Bot.* 17: 257-332.
- MACBRIDE, J. F. 1916. *Mertensias* of western North America. *Contr. Gray Herb.* II, 48: 1-20.
- . 1916. Revision of the genus *Oreocarya*. *Contr. Gray Herb.* II, 48: 20-38.
- MACBRIDE, J. F., AND E. B. PAYSON. 1917. A revision of the *Erigerons* of the series *multifida*. *Contr. Gray Herb.* II, 49: 72-79.
- MACKENZIE, K. K. 1917. *Carex epapillosa*. Page 138 in P. A. Rydberg, *Flora of the Rocky Mountains*. New York: by the author.
- MAGUIRE, B. 1941. Great Basin plants—III. Caryophyllaceae. *Madrono* 6: 22-27.
- . 1942. Great Basin plants—VII. Cruciferae. *Amer. Midl. Naturalist* 27: 463-469.
- . 1944. Great Basin plants—VIII. New species in *Carex* and *Erigeron*. *Brittonia* 5: 199-202.
- . 1946. Studies in the Caryophyllaceae—I. *Bull. Torrey Bot. Club* 73: 326.
- . 1947. Great Basin plants—IX. Compositae. *Arnica*, *Hymenopappus*, *Haplopappus*, and *Lygodesmia*. *Amer. Midl. Naturalist* 37: 136-145.
- . 1947. Studies in the Caryophyllaceae—III. A synopsis of the North American species of *Arenaria*. *Bull. Torrey Bot. Club* 74: 38-56.
- . 1951. Studies in the Caryophyllaceae—IV. *Arenaria* in America north of Mexico, a conspectus. *Amer. Midl. Naturalist* 46: 493-511.
- MAGUIRE, B. AND A. CRONQUIST. 1947. *Erigeron flagellaris* var. *trilobatus*. Page 258 in A. Cronquist, *Revision of the North American species of Erigeron*, north of Mexico. *Brittonia* 6: 121-302.
- MAGUIRE, B. AND G. H. JENSEN. 1942. Great Basin plants—V. Aquatics. *Rhodora* 44: 5-10.
- MAGUIRE, B. AND A. H. HOLMGREN. 1946. Botany of the Intermountain Region—I. *Leafl. W. Bot.* 4: 261-267.
- MAGUIRE, B. AND R. E. WOODSON. 1941. Two new Asclepiads from the southwestern United States. *Ann. Missouri Bot. Gard.* 28: 245.
- MARSHALL, W. T. 1954. *Pediocactus hermannii* sp. nov. *Saguaroland Bull.* 8: 78-81.
- MARTIN, R. F. 1940. A new *Juncus* from Utah. *Rhodora* 40: 69-70.
- MATHIAS, M. E. 1930. Studies in Umbelliferae III. A monograph of *Cymopterus* including a critical study of related genera. *Ann. Missouri Bot. Gard.* 17: 213-474.
- . 1932. Studies in the Umbelliferae. IV. A new species of *Cogswellia*. *Ann. Missouri Bot. Gard.* 19: 497-498.

- MCKELVEY, S. D. 1947. *Yuccas of the southwestern United States. Part 2. Jamaica Plain; Arnold Arboretum.* 192 pp.
- MCVAUGH, R. 1956. Edward Palmer. Plant Explorer of the American West. Norman: University of Oklahoma Press. 430 pp.
- MEZ, C. C. 1921. *Stipa mormonum*. Feddes Repert. 17: 209.
- MORTON, C. V. 1937. *Physaria grahamii*. Page 26 in E. H. Graham, Botanical studies in the Uinta Basin of Utah and Colorado. Ann. Carnegie Mus. Vol. 26.
- MUNZ, P. A. 1928. Studies in Onagraceae—I. A revision of the subgenus Chylismia of the genus *Oenothera*. Amer. J. Bot. 15: 223-240.
- . 1931. Studies in Onagraceae—VII. The subgenus Pachylophus of the genus *Oenothera*. Amer. J. Bot. 18: 728-738.
- . 1965. Botanical exploration of Marcus E. Jones. Leaflet. W. Bot. 10: 193-236.
- MURRAY, E. 1980. *Acer* notes No. 9. *Kalmia* 10: 2.
- NEESE, E. J., AND S. L. WELSH. 1981. *Astragalus* section *Desperati* and a new species from the Uinta Basin of Utah. *Rhodora* 83: 455-460.
- NELSON, A. 1899. New plants from Wyoming—VII. Bull. Torrey Bot. Club 26: 236-250.
- . 1900. Some Rocky Mountain *Chrysothamni*. Bot. Gaz. 28: 369-377.
- . 1900. Contributions from the Rocky Mountain herbarium—I. Bot. Gaz. 30: 189-203.
- . 1902. Contributions from the Rocky Mountain herbarium—IV. *Chenopodiaceae*. Bot. Gaz. 34: 355-371.
- . 1904. Contributions from the Rocky Mountain herbarium—V. Bot. Gaz. 37: 260-279.
- . 1904. New plants from Nevada. Proc. Biol. Soc. Washington 17: 91-98.
- . 1906. Contributions from the Rocky Mountain herbarium VII. Bot. Gaz. 42: 48-54.
- . 1907. Some new western plants and their collectors. Proc. Biol. Soc. Washington 20: 33-40.
- . 1912. Contributions from the Rocky Mountain herbarium—XI. New plants from Idaho. Bot. Gaz. 54: 138-151.
- . 1913. Contributions from the Rocky Mountain herbarium—XIII. Bot. Gaz. 56: 61-71.
- . 1922. Flora of the Navajo Indian Reservation—II. Amer. Botanist 28: 20-25.
- . 1924. Taxonomic studies—miscellaneous new species. Univ. Wyoming Publ. Bot. 1: 63-68.
- . 1926. Miscellaneous new species. Univ. Wyoming Publ. Sci. Bot. 1: 122-143.
- . 1934. Rocky Mountain herbarium studies—II. Amer. J. Bot. 21: 573-582.
- . 1936. Rocky Mountain herbarium studies—IV. Amer. J. Bot. 23: 265-271.
- . 1945. Rocky Mountain herbarium studies—VI. Amer. J. Bot. 32: 284-290.
- NELSON, A., AND J. F. MACBRIDE. 1916. Western plant studies—III. Bot. Gaz. 61: 30-47.
- NELSON, E. 1899. Revision of the North American *Phloxes*. Laramie; by the author. 35 pp.
- . 1901. A revision of certain species of plants of the genus *Antennaria*. Proc. U.S. Natl. Museum 23: 697-713.
- NORTON, J. B. S. 1899. North American species of *Euphorbia*, section *Tithymalus*. Eleventh Annual Report. Missouri Bot. Gard. 144 pp.
- OSTERHOUT, C. E. 1926. *Oreocarya breviflora*. Page 169 in E. B. Payson, *Thlaspi, Oreocarya, and Erigeron*. Univ. Wyoming Publ. Bot. 1: 145-186.
- OTTLEY, A. M. 1944. The American *Loti* with special consideration of a proposed new section, *Simpteteria*. Brittonia 5: 81-123.
- OWNBEY, C. B. 1958. Monograph of the genus *Argemone* for North America and the West Indies. Mem. Torrey Bot. Club 21(1):1-159.
- PARRY, C. C. 1875. Botanical observations in southern Utah in 1874. Amer. Naturalist 9: 14-21, 139-146, 199-205, 267-273, 346-351.
- . 1878. Botanical Collection. Proc. Davenport Acad. Nat. Sci. 2: 279-282.
- PAYSON, E. B. 1915. New and noteworthy plants from southwestern Colorado. Bot. Gaz. 60: 374-382.
- . 1921. A monograph of the genus *Lesquerella*. Ann. Missouri Bot. Gard. 8: 103-236.
- . 1926. *Thlaspi, Oreocarya, and Erigeron*. Univ. Wyoming Publ. Bot. 1: 145-186.
- PENNEL, F. W. 1920. Scrophulariaceae of the central Rocky Mountain states. Contr. U.S. Natl. Herb. 20: 313-381.
- . 1933. A revision of *Synthyris* and *Besseya*. Acad. Nat. Sci. Philadelphia 85: 77-106.
- . 1935. The Scrophulariaceae of eastern temperate North America. Acad. Nat. Sci. Philadelphia Monogr. 1: 1-650.
- PETRAK, F. 1917. Die nordamerikanischen Arten der Gattung *Cirsium*. Beih. Bot. Centralbl. 35(2): 223-567
- PILGER, R. K. F. 1922. Über die Formen von *Plantago major* L. Feddes Repert. 18: 277.
- PIPER, C. V. 1899. New and noteworthy Northwestern plants—II. *Erythea* 7: 159-163.
- PORTER, C. L. 1952. Novelities in *Hermidium* (Nyctaginaceae) and *Astragalus* (Leguminosae) from eastern Utah. *Rhodora* 54: 158-161.
- PRESTON, C. H. 1897. Biographical sketch of Dr. C. C. Parry. Proc. Davenport Acad. Nat. Sci. 6: 35-45.
- PURPUS, J. A. 1900. Die Succulenten der La Sal Mountains in Utah. Monats. Kakteenk. 10: 95-97.
- . 1900. Die Succulenten der La Sal Mountains in Utah. Monats. Kakteenk. 10: 110-112.
- . 1909. *Opuntia utahensis* J. A. Purpus nov. spec. Monats. Kakteenk. 19: 133-135.
- RAVEN, P. H. 1962. The systematics of *Oenothera* subgenus *Chylismia*. Univ. Calif. Publ. Bot. 34: 1-122.
- . 1969. A revision of the genus *Camissonia* (Onagraceae). Contr. U.S. Natl. Herb. 37: 161-396.
- RECHINGER, K. H. 1936. *Rumex utahensis*. Feddes Repert. 40: 298.
- REVEAL, J. L. 1965. Notes on three Utah *Eriogonum*s. Proc. Utah Acad. 42: 287-292.
- . 1967. Notes on *Eriogonum*—V. A revision of the *Eriogonum corymbosum* complex. Great Basin Naturalist 27: 183-229.
- . 1968. A new annual *Eriogonum* from Utah. Ann. Missouri Bot. Gard. 55: 74-75.
- . 1969. New species of *Eriogonum* from Utah. Madrono 19: 289-300.

- \_\_\_\_\_. 1972. Descriptions of new species and combinations in *Eriogonum* (Polygonaceae). *Phytologia* 23: 163-178.
- \_\_\_\_\_. 1973. *Eriogonum* (Polygonaceae) of Utah. *Phytologia* 25: 169-217.
- \_\_\_\_\_. 1974. Two shrubby novelties in *Eriogonum* (Polygonaceae) from the deserts of Utah and Arizona. *Brittonia* 26: 90-94.
- \_\_\_\_\_. 1974. Two new varieties of *Eriogonum* (Polygonaceae) from the Intermountain Region. *Great Basin Naturalist* 34: 245-246.
- \_\_\_\_\_. 1976. *Eriogonum* (Polygonaceae) of Arizona and New Mexico. *Phytologia* 35: 409-483.
- \_\_\_\_\_. 1977. *Yucca angustissima* var. *aria*. *Intermountain Flora* 6: 534.
- \_\_\_\_\_. 1981. A new pulvinate *Eriogonum* (Polygonaceae) from Utah. *Great Basin Naturalist* 41: 229-231.
- ROBBINS, J. W. 1871. *Potamogeton*. Pages 247-340 in S. Watson, Botany. Report of U.S. Geological Exploration of the Fortieth Parallel. 5: xiii-525.
- ROBINSON, B. L. 1917. A monograph of the genus *Brickellia*. *Mem. Gray Herb.* 1: 1-151.
- ROBINSON, B. L., AND J. M. GREENMAN. 1899. Revision of the genus *Gymnolomia*. *Proc. Boston Soc. Nat. Hist.* 29: 87-100.
- ROLLINS, R. C. 1939. The Cruciferous genus *Physaria*. *Rhodora* 41: 392-414.
- \_\_\_\_\_. 1940. Studies in the genus *Hedysarum* in North America. *Rhodora* 42: 217-239.
- \_\_\_\_\_. 1941. Some new or noteworthy North American crucifers. *Contr. Dudley Herb.* 3: 174-183.
- \_\_\_\_\_. 1941. Monographic study of *Arabis* in western North America. *Rhodora* 43: 289-485.
- \_\_\_\_\_. 1955. The auriculate-leaved species of *Lesquerella* (Cruciferae). *Rhodora* 57: 241-264.
- \_\_\_\_\_. 1971. Protogyny in the Cruciferae and notes on *Arabis* and *Caulanthus*. *Contr. Gray Herb.* 201: 3-10.
- \_\_\_\_\_. 1981. Studies on *Arabis* (Cruciferae) of western North America. *Systematic Botany* 6: 55-64.
- ROSENDAL, C. O., F. K. BUTTERS, AND O. LAKELA. 1936. *Heuchera versicolor* f. *pumila*. *Minnesota Studies Plant Sci.* 2: 85.
- RYDBERG, P. A. 1897. Notes on *Potentilla*-VI. *Bull. Torrey Bot. Club* 24: 1-13.
- \_\_\_\_\_. 1900. Catalogue of the flora of Montana and the Yellowstone National Park. *Mem. New York Bot. Gard.* 1: i-492.
- \_\_\_\_\_. 1900. Studies on the Rocky Mountain Flora-I. *Bull. Torrey Bot Club* 27: 169-189.
- \_\_\_\_\_. 1900. Studies on the Rocky Mountain Flora-II. *Bull. Torrey Bot. Club* 27: 614-636.
- \_\_\_\_\_. 1900. Studies on the Rocky Mountain Flora-III. Some smaller genera of composites. *Bull. Torrey Bot. Club* 27: 614-636.
- \_\_\_\_\_. 1901. The oaks of the continental divide north of Mexico. *Bull. New York Bot. Gard.* 2: 187-233.
- \_\_\_\_\_. 1902. Studies on the Rocky Mountain Flora-VII. *Bull. Torrey Bot. Club* 29: 145-160.
- \_\_\_\_\_. 1902. Studies on the Rocky Mountain Flora-VIII. *Bull. Torrey Bot. Club* 29: 232-246.
- \_\_\_\_\_. 1902. Studies on the Rocky Mountain Flora-IX. *Bull. Torrey Bot. Club* 29: 680-693.
- \_\_\_\_\_. 1903. Studies on the Rocky Mountain Flora-X. *Bull. Torrey Bot. Club* 30: 247-262.
- \_\_\_\_\_. 1903. Some generic segregations. *Bull. Torrey Bot. Club* 30: 271-281.
- \_\_\_\_\_. 1904. Studies on the Rocky Mountain Flora-XII. *Bull. Torrey Bot. Club* 31: 555-575.
- \_\_\_\_\_. 1904. Studies on the Rocky Mountain Flora-XIII. *Bull. Torrey Bot. Club* 31: 631-655.
- \_\_\_\_\_. 1905. Studies on the Rocky Mountain Flora-XIV. *Bull. Torrey Bot. Club* 32: 123-138.
- \_\_\_\_\_. 1905. *Astragalus* and its segregates as represented in Colorado. *Bull. Torrey Bot. Club* 32: 657-668.
- \_\_\_\_\_. 1907. Studies on the Rocky Mountain Flora-XVII. *Bull. Torrey Bot. Club* 34: 35-50.
- \_\_\_\_\_. 1907. Studies on the Rocky Mountain Flora-XVIII. *Bull. Torrey Bot. Club* 34: 417-437.
- \_\_\_\_\_. 1908. Rosaceae-III & IV. *N. Amer. Fl.* 22: 239-387.
- \_\_\_\_\_. 1909. Studies on the Rocky Mountain Flora-XX. *Bull. Torrey Bot. Club* 36: 675-698.
- \_\_\_\_\_. 1910. Studies on the Rocky Mountain Flora-XXI. *Bull. Torrey Bot. Club* 37: 127-148.
- \_\_\_\_\_. 1910. Studies on the Rocky Mountain Flora-XXII. *Bull. Torrey Bot. Club* 37: 313-335.
- \_\_\_\_\_. 1910. Studies on the Rocky Mountain Flora-XXIII. *Bull. Torrey Bot. Club* 37: 443-471.
- \_\_\_\_\_. 1910. Studies on the Rocky Mountain Flora-XXIV. *Bull. Torrey Bot. Club* 37: 541-557.
- \_\_\_\_\_. 1911. Studies on the Rocky Mountain Flora-XXV. *Bull. Torrey Bot. Club* 38: 11-23.
- \_\_\_\_\_. 1912. Studies on the Rocky Mountain Flora-XXVI. *Bull. Torrey Bot. Club* 39: 99-111.
- \_\_\_\_\_. 1912. Studies on the Rocky Mountain Flora-XXVII. *Bull. Torrey Bot. Club* 39: 301-328.
- \_\_\_\_\_. 1913. Studies on the Rocky Mountain Flora-XXVIII. *Bull. Torrey Bot. Club* 40: 43-74.
- \_\_\_\_\_. 1913. Studies on the Rocky Mountain Flora-XXIX. *Bull. Torrey Bot. Club* 40: 461-485.
- \_\_\_\_\_. 1913. Rosaceae-V. *N. Amer. Fl.* 22: 389-479
- \_\_\_\_\_. 1914. (Carduales) *Carduaceae*. *Heleneae*. *N. Amer. Fl.* 34: 1-80.
- \_\_\_\_\_. 1915. *Gaillardia*. *N. Amer. Fl.* 34: 131-140.
- \_\_\_\_\_. 1917. Notes on Rosaceae-XI. *Roses of California and Nevada*. 44: 65-84.
- \_\_\_\_\_. 1917. *Flora of the Rocky Mountains*. New York; by the author. 1143 pp.
- \_\_\_\_\_. 1922. *Flora of the Rocky Mountains*. ed. 2. New York: by the author. 1143 pp.
- \_\_\_\_\_. 1925. Notes on Fabaceae-V. *Bull. Torrey Bot. Club* 52: 229-235.
- \_\_\_\_\_. 1927. *Senecioneae*. *N. Amer. Fl.* 34: 309-360.
- \_\_\_\_\_. 1929. (Rosales) *Fabaceae*, *Galageae*. *N. Amer. Fl.* 24: 315-462.
- \_\_\_\_\_. 1929. *Scylla* or *Charybdis*. *Proc. International Congress Plant Sciences*. 2: 1539-1551.
- ST.-YVES, A. 1925. Contribution a l'etude des *Festuca* (Subgenus *Eu-Festuca*) de l'Amerique du Nord et du Mexique. *Candollea* 2: 229-316.
- SCHNEIDER, C. K. 1905. Beitrag zur Kenntnis der Arten und Formen der Gattung *Cercocarpus* Kunth. *Mitt. Deutsch. Dendrol. Gesells.* 14: 125-129.
- \_\_\_\_\_. 1905. *Illustriertes Handbuch der Laubholzkunde*. Vol. 1. Jena. Part 2: 449-592.
- SCHULZ, O. E. 1903. Monographie der gattung *Cardamine*. *Bot. Jahrb. Syst.* 32: 417-623.
- \_\_\_\_\_. 1924. *Descurainia*. *Pflanzenr.* 4, Fam. 105 (Heft 86): 304-346.



- . 1927. *Draba*—Section XII. *Phyllodraba*. Pflanzentr. 4, Fam. 105 (Heft 89): 173–198.
- SCRIBNER, F. L. 1911. Notes on certain species of *Muhlenbergia*. Bull. Torrey Bot. Club 38: 319–328.
- SCRIBNER, F. L. AND T. A. WILLIAMS. 1899. New species of North American Grasses. U.S.D.A. Agrostol. Circ. 9. 7 pp.
- SHARP, 1935. A critical study of certain epappose genera of the Heliantheae-Verbesininae of the natural family Compositae. Ann. Missouri Bot. Gard. 22: 51–152.
- SHELDON, E. P. 1894. A preliminary list of the North American species of *Astragalus*. Bull. Geol. & Nat. Hist. Surv. Minn. 9: 116–175.
- SHULTZ, L. M. AND J. SHULTZ. 1981. A new species of *Hackelia* (Boraginaceae) from Utah. Brittonia 33: 159–161.
- SLOSSON, M. 1914. Notes on two North American ferns. Bull. Torrey Bot. Club 41: 307–309.
- SMALL, J. K. 1896. *Oenothera* and its segregates. Bull. Torrey Bot. Club 23: 167–194.
- . 1898. Studies in North American Polygonaceae. Bull. Torrey Bot. Club 25: 40–53.
- . 1905. Hydrangeaceae. N. Amer. Fl. 22: 159–178.
- SMALL, J. K. AND P. A. RYDBERG. 1905. Saxifragaceae. N. Amer. Fl. 22: 81–158.
- SMILEY, F. J. 1916. *Mertensia praecox*. Page 10 in J. F. Macbride, *Mertensias* of western North America. Contr. Gray Herb. II, 48: 1–20.
- SMITH, C. P. 1912. Notes from northern Utah—IV. *Muhlenbergia* 7: 136–138.
- . 1948. *Lupinus*. Sp. *Lupinorum* 36: 625–640.
- . 1949. *Lupinus*. Sp. *Lupinorum* 38: 657–672.
- . 1951. *Lupinus*. Sp. *Lupinorum* 40: 689–704.
- SMITH, J. G. 1899. Studies on American grasses: synopsis of genus *Sitanion*. U.S.D.A. Agrostol. Bull. 18: 1–21.
- STANDLEY, P. C. 1916. Chenopodiales, Chenopodiaceae. N. Amer. Fl. 21: 1–93.
- STANSBURY, H. 1852. Exploration and survey of the valley of the Great Salt Lake of Utah. Philadelphia. Lippincott, Grambo and Co.
- ST. JOHN, H. 1915. *Rumex persicarioides* and its allies in North America. Rhodora 17: 73–83.
- STOCKWELL, P. 1940. A revision of the genus *Chaenactis*. Contr. Dudley Herbarium 3: 89–168.
- STOKES, S. G. 1936. The genus *Eriogonum*, a preliminary study based on geographical distribution. San Francisco, J. H. Neblett Press.
- SUKSDORF, W. N. 1931. Untersuchungen in der gattung *Amsinkia*. Werdenda 1: 47–113.
- SWALLEN, J. R. 1931. *Crassipes*, a new grass genus from Utah. Amer. J. Bot. 18: 684–685.
- THURBER, G. 1871. *Vilfa depauperata* var. *filiformis*. Page 376 in: S. Watson, Botany. Report of U.S. Geological Survey of the Fortieth Parallel. 5: xiii–525.
- TIDESTROM, I. 1910. Species of *Aquilegia* growing in Utah and in adjacent portions of Colorado, Idaho and Arizona. Amer. Midl. Naturalist 1: 165–196.
- . 1913. A new *Salicornia*. Proc. Biol. Soc. Washington 26: 13.
- . 1913. Novitates florae utahensis. Proc. Biol. Soc. Washington 26: 121–122.
- . 1914. A new *Delphinium* from Utah. Proc. Biol. Soc. Washington 27: 61.
- . 1923. New or noteworthy species of plants from Utah and Nevada. Proc. Biol. Soc. Washington 36: 181–184.
- TORREY, J. 1852. Catalogue of plants collected in the expedition. Pages 381–397 in H. Stansbury, Exploration and survey of the valley of the Great Salt Lake of Utah. Philadelphia. Lippincott, Grambo and Co.
- . 1871. Species of *Fraxinus*, and *Phacelia*. Pages 251,253,283. in S. Watson. Botany. Report of U.S. Geological Survey of the Fortieth Parallel. 5: xiii–525.
- TORREY, J., AND J. C. FREMONT. 1845. Pages 311–320 in J. C. Fremont, Descriptions of some new genera and species of plants, collected in Capt. J. C. Fremont's exploring expedition to Oregon and north California in the years 1843–44. House Rep. Doc. 199.
- TORREY, J., AND A. GRAY. 1855. Report on the botany of the expedition. Pages 115–132 in E. G. Beckwith, Report of explorations for a route for the Pacific Railroad, on the line of the forty-first parallel of north latitude. Reports of explorations and surveys, to ascertain the most practicable and economical route for a railroad from the Mississippi River to the Pacific Ocean. 33rd Cong., 2nd Sess., House Rep. Ex. Doc. Vol. II, no 91.
- . 1870. A revision of the *Eriogoneae*. Proc. Amer. Acad. 8: 145–200.
- TRELEASE, W. O. 1902. The *Yuccaeae*. Rep. Missouri Bot. Gard. 13: 27–133.
- . 1907. Additions to the genus *Yucca*. Ann. Missouri Bot. Gard. 18: 225–230.
- TUZSON, J. 1921. *Arabis hirsuta* f. *laevis*. Bericht Freien Verein. Pflanzengeogr. Syst. Bot. 1919: 43. 1921.
- UNDERWOOD, L. M. 1898. *Selaginella rupestris* and its allies. Bull. Torrey Bot. Club 25: 125–133.
- VASEY, G. 1876. A catalogue of the forest trees of the United States which usually attain a height of sixteen feet or more. Washington. Govt. Printing Office.
- . 1893. Descriptions of new or noteworthy grasses from the United States. Contr. U.S. Natl. Herb. 1: 267–281.
- VOSS, J. W. 1937. A revision of the *Phacelia* crenulata group for North America. Bull. Torrey Bot. Club 64: 133–144.
- WAGNER, W. L. 1981. *Oenothera acutissima* (Onagraceae), a new species from northwestern Colorado and adjacent Utah. Systematic Botany 6: 153–158.
- WARD, L. F. 1876. General notes. 1—botany. Amer. Naturalist 10: 552–555.
- WATSON, E. E. 1929. Contributions to a monograph of the genus *Helianthus*. Papers Michigan Acad. Sci. 9: 305–475.
- WATSON, S. 1871. Botany. In C. King. Report of the Geological Exploration of the Fortieth Parallel. 5: xiii–525. Washington: Government Printing Office.
- . 1871. Descriptions of new species of plants, with revisions of certain genera. Proc. Amer. Acad. 12: 246–278.

- \_\_\_\_\_. 1873. Revision of the extra-tropical North American species of the genus *Lupinus*. Proc. Amer. Acad. 8: 517-548.
- \_\_\_\_\_. 1873. Revision of the extra-tropical North American species of the genus *Potentilla*. Proc. Amer. Acad. 8: 549-573.
- \_\_\_\_\_. 1873. New plants of northern Arizona and the region adjacent. Amer. Naturalist 7: 299-303.
- \_\_\_\_\_. 1873. Revision of the extra-tropical North American species of the genus *Oenothera*. Proc. Amer. Acad. 8: 573-618.
- \_\_\_\_\_. 1874. A revision of the North American Chenopodiaceae. Proc. Amer. Acad. 9: 82-126.
- \_\_\_\_\_. 1874. Contributions to the botany of North America—characters of various new species. Proc. Amer. Acad. 10: 68-78.
- \_\_\_\_\_. 1875. Revision of the genus *Oenothera*, and description of new plants. Proc. Amer. Acad. 10: 333-350.
- \_\_\_\_\_. 1876. Botanical contributions—VI. Proc. Amer. Acad. 11: 105-148.
- \_\_\_\_\_. 1876. Geological Survey of California. Botany. Vol. I. ed. 1.
- \_\_\_\_\_. 1877. Descriptions of new species of plants, with revisions of certain genera. Proc. Amer. Acad. 21: 246-278.
- \_\_\_\_\_. 1878. Bibliographical index to North American botany. Washington, D.C. Smithsonian Institution. 476 pp.
- \_\_\_\_\_. 1879. Contributions to American botany. Proc. Amer. Acad. 14: 213-303.
- \_\_\_\_\_. 1888. Contributions to American botany. Proc. Amer. Acad. 23: 249-287.
- WATSON, T. J., JR. 1977. The taxonomy of *Xylorhiza* (Asteraceae—Asteraceae). Brittonia 29: 199-216.
- WEBER, W. A. 1946. A taxonomic and cytological study of the genus *Wyethia*, family Compositae, with notes on the related genus *Balsamorhiza*. Amer. Midl. Naturalist 35: 400-452.
- WELSH, S. L. 1970. An undescribed species of *Astragalus* (Leguminosae) from Utah. Rhodora 72: 189-193.
- \_\_\_\_\_. 1970. New and unusual plants from Utah. Great Basin Naturalist 30: 16-22.
- \_\_\_\_\_. 1971. Description of a new species of *Dalea* (Leguminosae) from Utah. Great Basin Naturalist 31: 90-92.
- \_\_\_\_\_. 1974. Utah plant novelties in *Astragalus* and *Yucca*. Great Basin Naturalist 34: 305-310.
- \_\_\_\_\_. 1976. Utah plant novelties in *Cymopterus* and *Penstemon*. Great Basin Naturalist 35: 377-378.
- \_\_\_\_\_. 1978. Endangered and threatened plants of Utah: A reevaluation. Great Basin Naturalist 35: 1-18.
- \_\_\_\_\_. 1978. Utah flora: Fabaceae (Leguminosae). Great Basin Naturalist 38: 225-367.
- \_\_\_\_\_. 1980. Utah flora: Malvaceae. Great Basin Naturalist 40: 27-37.
- \_\_\_\_\_. 1981. New taxa of western plants—in tribute. Brittonia 33: 294-303.
- \_\_\_\_\_. 1982. Utah Flora: Rosaceae. Great Basin Naturalist (in preparation).
- WELSH, S. L., AND N. D. ATWOOD. 1977. An undescribed species of *Thelypodopsis* (Brassicaceae) from the Uinta Basin, Utah. Great Basin Naturalist 37: 95-96.
- WELSH, S. L., AND R. C. BARNEY. 1981. *Astragalus lentiginosus* (Fabaceae) revisited—a unique new variety. Isleya 2: 1-2. 1981.
- WELSH, S. L., AND S. GOODRICH. 1980. Miscellaneous plant novelties from Alaska, Nevada, and Utah. Great Basin Naturalist 40: 78-88.
- WELSH, S. L., AND G. MOORE. 1968. Plants of Natural Bridges National Monument. Proc. Utah Acad. 45: 220-248.
- WELSH, S. L., AND J. L. REVEAL. 1968. A new species of *Townsendia* (Compositae) from Utah. Brittonia 20: 375-377.
- \_\_\_\_\_. 1977. Utah Flora: Brassicaceae (Cruciferae). Great Basin Naturalist 37: 279-365.
- WELSH, S. L., N. D. ATWOOD, AND J. L. REVEAL. 1975. Endangered, threatened, extinct, endemic, and rare or restricted Utah vascular plants. Great Basin Naturalist 35: 327-374.
- WHEELER, G. M. 1878. Report upon United States geographical surveys west of the one hundredth meridian. Vol. VI. Washington D.C. Government Printing Office. 404 pp.
- WHERRY, E. T. 1943. *Microsteris*, *Phlox*, and an intermediate. Brittonia 5: 60-63.
- \_\_\_\_\_. 1944. New *Phloxes* from the Rocky Mountains and neighboring regions. Not. Nat. 146: 1-11.
- WHITE, T. G. 1894. A preliminary revision of the genus *Lathyrus* in North and Central America. Bull. Torrey Bot. Club 21: 444-458.
- WILLIAMS, L. O. 1932. Field and herbarium studies—I. Bull. Torrey Bot. Club 59: 427-429.
- \_\_\_\_\_. 1936. Revision of the western *Primulas*. Amer. Midl. Naturalist 17: 741-748.
- WILLIAMS, T. A. 1899. *Poa fendleriana* and its allies. U.S.D.A. Agrostol. Circ. 10. 6 pp.
- YUNCKER, T. G. 1960. Two new species of *Cuscuta* from North America. Brittonia 12: 38-40.